

Environment, Food and Rural Affairs Committee

Oral evidence: Plastic food and drink packaging, HC 2080

Tuesday 14 May 2019

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[Watch the meeting](#)

Members present: Neil Parish (Chair); Alan Brown; John Grogan; Dr Caroline Johnson; Kerry McCarthy; David Simpson; Julian Sturdy.

Questions 1 - 71

Witnesses

I: Sarah Greenwood, Packaging Consultant, The University of Sheffield, Grantham Centre for Sustainable Futures; Peter Maddox, Director, WRAP UK; Libby Peake, Senior Policy Adviser on Resource Stewardship, Green Alliance; Juliet Phillips, Ocean Campaigner, Environmental Investigation Agency, Wildlife and Countryside Link.

Written evidence from witnesses:

- [The Grantham Centre for Sustainable Futures](#)
- [WRAP UK](#)
- [Green Alliance](#)
- [Environmental Investigation Agency](#)
- [Wildlife and Countryside Link](#)

Examination of Witnesses

Witnesses: Sarah Greenwood, Peter Maddox, Libby Peake and Juliet Phillips.

Q1 Chair: Thank you very much for coming to our evidence session on plastics, reduction of plastics and removal of plastics. We are trying to drill down on causes and effects. For the record, if you would like to introduce yourself, then I will start with the first question.

Juliet Phillips: I am Juliet Phillips, ocean campaigner at the Environmental Investigation Agency, which is a UK-based NGO. We are also a member of the Wildlife and Countryside Link, which is a coalition of NGOs working on countryside and conservation matters.

Libby Peake: I am Libby Peake, senior policy adviser at Green Alliance. We are an environmental charity and think tank, focused on ambitious leadership for the environment.

Peter Maddox: I am Peter Maddox. I am director at WRAP, the Waste and Resources Action Programme. I look after our work on plastics, food waste and textiles.

Sarah Greenwood: Hello, I am Sarah Greenwood. I am a packaging consultant at the Grantham Centre for Sustainable Futures at the University of Sheffield.

Q2 Chair: Thank you very much. Thank you all for coming this afternoon. The first question is this. Defra statistics for 2016 show the UK produced 1.53 million tonnes of plastic waste. Have you any idea of how much of this comes from plastic food and drink packaging, even if it is only a percentage? Peter looks like he might want to come in on that one.

Peter Maddox: Yes, I am happy to lead on that one. We know our estimate is that just less than 1 million tonnes of plastic packaging is placed on the market in the UK. You asked about the 1.5 million tonnes and how much of that is plastic packaging. I do not have the number to hand, but my estimate is that something like 60% of that would be plastic packaging.

Chair: You think possibly 500,000 tonnes or thereabouts.

Libby Peake: I have some slightly different figures, which illustrates some of the problem. We have quite poor figures in general to do with resources and packaging placed on the market. Part of the problem is that the information is provided by the producers themselves. There are a large number of producers that are not currently obligated under the producer responsibility scheme. The UK has the highest de minimis threshold under which people do not have to report their figures. It is 50 tonnes and a turnover of £2 million, which is the highest in Europe.

Q3 Chair: You are saying that, if you are producing up to 50 tonnes of



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plastics, you do not have to declare it. Is that right?

Libby Peake: That is right, yes.

Q4 **Chair:** That is a lot of plastic.

Libby Peake: Yes, it is. Defra estimates that, for packaging in general, if we got rid of that de minimis threshold, around 910,000 additional companies would then have to report. There are a lot of things that we do not have any information about to begin with. The information that I have is provided in a PackFlow report that was compiled by WRAP and Valpak, which is the largest compliance scheme. The figure I have is that there was 2.4 million tonnes of plastic packaging on the market in 2017, 1.5 million tonnes of which was consumer packaging. That is based on information that the producers have supplied. The consultancy Eunomia has done some research looking at the other end, the composition of waste, and extrapolated from that how much packaging waste is in there.

Q5 **Chair:** You think the anomaly between the two figures, which is something like nearly 1 million tonnes, quite a big anomaly, is due to the fact that a lot of companies do not necessarily have to register.

Libby Peake: Yes, and there is a built-in incentive to underreport, as the figures are provided by producers themselves. The National Audit Office did a report last summer into the PRN system and criticised the complicated methodology for determining the amount of packaging that is placed on the market. In general, my overall observation is that we have very poor information in this area.

Peter Maddox: To reiterate, on your point about the 2.3 million tonnes of plastic packaging placed on the market, it is indeed in the PackFlow report. I was giving you the 1 million tonnes and incorrectly identified it as being all plastic packaging, but the 1 million tonnes is plastic food and drink packaging. That is the subject of your inquiry, plastic food and drink packaging. That is what I had in mind.

Q6 **Chair:** Yes, I was particularly asking about food and drink packaging.

Peter Maddox: There was 2.3 million tonnes of plastic packaging placed on the market, of which we estimate just under 1 million tonnes is food and drink plastic packaging.

Chair: Sarah, from your point of view, is there anything you wanted to add to it?

Sarah Greenwood: No, there is nothing I would like to add to that.

Q7 **Alan Brown:** To back up the point Libby made about different figures being used, we have a briefing note saying that a WWF report estimates plastic waste generation in the UK at nearly 5 million tonnes. I suppose this is just to ask what needs to be done and who needs to take responsibility for getting an understanding of the plastic waste that is out there. Is there even an understanding of how much plastic waste is recycled? Again, in the briefing for this, I am seeing wildly different



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figures. Who says how much waste plastic is properly recycled and recovered? I want to try to get an understanding of that as well.

Chair: Libby, you started this argument. You had better carry on.

Libby Peake: The consultations that were launched, which have concluded now, suggested either lowering or getting rid of the de minimis, which is a very important step in the first instance in making sure that everyone has to report on the figures that they produce. I would say that, whatever system we end up with, it needs to be much more rigorously monitored. There are problems to do with funding of the Environment Agency and a lack of checks on the figures. Producers need to supply information, but then if you want accurate information it also has to be audited.

Chair: Yes, I suppose the auditing of it would be important.

Q8 **Alan Brown:** I was asking if there is an understanding of how much plastic waste is recycled. I will give an example, because I have come to know that the British Plastics Federation reckons that 78% of plastic packaging is presently recovered, yet the Bio-based and Biodegradable Industries Association says only 10% of plastic waste is effectively recycled, but 60% is going to landfill or incineration. Those are hugely different figures, so it is about understanding what is happening in the real world.

Q9 **Libby Peake:** Those different figures will be talking about different things as well, which is problematic. People will be presenting figures for plastic bottle recycling or something, which is potentially higher than all plastic recycling. The figure that BBIA quoted I imagine is looking at all plastic waste. The figures you can extrapolate from the Valpak and WRAP report PackFlow 2017, which was previous to the one I cited earlier, looked at all different plastic. The figures there suggest that only around a third of plastic is recycled, and only 9% is recycled domestically. That is not just packaging; that is all plastic.

Q10 **Chair:** This highlights something interesting. A point Peter and Libby have made, and a question Alan has asked, is that we will need to have correct figures, will we not? Otherwise, on both sides of the argument, one side will try to reduce the amount and, if we are not careful, the other side will try to inflate it. The whole idea of our inquiry, in a way, is that we have to get down to the practical figures. Having de minimis at all is bound to cloud things to a degree.

Peter Maddox: I absolutely agree with that. The whole issue of reporting on waste is very mixed across the piece. I would say that reporting on waste from households is good. Local authorities report their waste. Where there is a big gap is around commercial waste and business waste. There is very little transparency. It has been an ongoing challenge for developing policy, the fact that we cannot seem to get robust data on commercial waste.

Q11 **Dr Johnson:** I have a question on removing or reducing the de minimis.



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I can see that the de minimis level may be quite high at the moment, relative to some other countries. If you removed it completely, do you have any assessment of what cost there would be to business? What cost would there be to Government in policing it and ensuring it is done properly? What cost would there be to businesses in finding those figures and giving out that information? Is there a balance to be struck between the very smallest businesses and the larger businesses, or should every single business do it, regardless of cost?

Libby Peake: The more information you have, the better. There is an argument for making some exception for very small businesses. The figure we have submitted to the consultation is that, if you are putting on the market more than one tonne of packaging a year, you should be obligated. I do not have any figures for how much that would cost. You are right that that would be important to ascertain, but we know that other European countries have either no de minimis or very low de minimis. It is possible to do that and to have producers still be viable.

Peter Maddox: Even big companies struggle to provide some of the data. As part of the UK Plastics Pact, we have been asking members of the pact not just to report on the total amount of plastic packaging they are placing on the market, but to do it by the type of polymer as well, whether it is polystyrene, PVC, polypropylene or PET. It is really interesting that some of what you would think are pretty major players are struggling to provide that information. That is quite important information, because some of those polymers are very recyclable, easily recyclable by the UK. Others are clearly not. We would want them to be removed from the market, because they are clearly not recyclable.

When you think of that and you think of what it is like for a small business, going forward, we need to find the right mechanism for small businesses to report at the right level of detail that makes it useful. I completely agree with Libby: we need to make sure we have really good information, because it is that information that dictates good policy.

Q12 **David Simpson:** When is it necessary for food and drink packaging to be made of plastic? Is this being recognised in the backlash against plastic? Is there anyone who wants to jump in?

Sarah Greenwood: Yes, plastic is such an amazing material in terms of properties for protecting and preserving food. It is lightweight. It has a lot of functional properties. You can introduce oxygen and moisture vapour barriers really easily. Packaging itself is important for protecting the product through the whole supply chain. It is not just what the customer sees at the end. It is not just this inconvenience that they have to get rid of. It is part of the supply chain. If you want to send products from one country to another, you have to specify more rigorous packaging than if you are buying it from the local farm shop.

There are options to some plastic packaging formats. It is difficult to say whether they would be effective, because then you are losing the



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properties and the functional properties as well. A report was issued in 2011 that said, if you replaced plastic packaging with alternatives, you would increase the weight of the packaging by 3.6 times. You would increase the energy use by 2.2 times. You would increase your carbon dioxide emissions by 2.7%.

Q13 **Chair:** I suppose it depends on what you replace it with, does it not?

Sarah Greenwood: It does.

David Simpson: That was exactly what I was going to ask.

Sarah Greenwood: That is on average over food packaging. For instance, it would be a lot more if you replaced a plastic bottle for olive oil with a glass bottle for olive oil. I know there was a retailer that probably about 10 years ago shifted from glass bottles to PET bottles. PET is the material that you have for lemonade bottles. They made significant fuel savings by switching from glass to PET. Glass is also a more energy-intensive material to produce than plastic, so you have, over the entire lifecycle of the product, significant carbon dioxide emission reduction.

Q14 **David Simpson:** On the point that the Chairman has made, what is the alternative? Plastic today is used in so many aspects of food alone, never mind any other produce. In so many aspects, it is used for food. What is the alternative? You talked about exporting. If we are exporting chicken into the European Union or vice versa, it comes in plastic containers, which are shrink wrapped or gassed with a plastic film across that. What is the alternative? What is out there to replace this? We know the difficulties. We accept them. We understand the ocean. We understand all of that. What is the alternative? From your perspective, what are you seeing as the alternatives?

Sarah Greenwood: To me, plastic is really valuable. We are just not managing it properly. In the UK, we have more control over that. In terms of exporting, we need to make sure the packaging is recyclable or reusable in the country it is going to.

Q15 **David Simpson:** Is that going to be achieved? Can it be achieved in the short term?

Sarah Greenwood: It depends on the country: if it is the developing world, probably not.

Q16 **David Simpson:** Basically, you are saying, Sarah, there is no easy answer to all of this. Is that really the bottom line? There is no easy answer to this. Someone somewhere has to come up with an innovative idea to try to change or reduce the use of plastic.

Peter Maddox: First of all, I agree there is no easy answer. Producers, when they make decisions about the type of material they use in their packaging, need to consider a whole wide variety of things. If you look back to the last 10 years, when packagers have been thinking about the



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environmental impact, fundamentally they have been thinking about carbon impact. Of course, they also need to be thinking about water footprint and energy footprint, which was the *Blue Planet* effect. Suddenly we are all worried about the marine footprint and marine pollution. There are trade-offs that producers have to decide on. We believe that the people who are close to the market are the best people to understand that.

I would make two additional points. First of all, you need to look at the full lifecycle impact from the whole supply chain. It is not just around that packager. Secondly, fundamentally, it is not about comparing the impact of the packaging; it is about comparing the impact of the products with their associated packaging. That is so important.

To come on to whether we should consider removing plastics, I have this fact that, when you look at a piece of meat, a nice eight ounce beefsteak in a package with a film on top, as you described, the carbon impact of the steak is over 100 times bigger than the carbon impact of the packaging. That packaging is providing extremely innovative barrier properties, which enables that meat to last a lot longer. If you did not have it in that pack, that meat might last three days. If you have it in a really good sealable pack, it will last 10 days. You start then thinking about what consumers want, reducing food waste and the fundamental economic value of that piece of meat. You need to think about it in terms of the whole product.

If I take another extreme, to go to the other extreme, you might look at a water bottle. The carbon impact of the water itself is not very big, but in that bottle the carbon impact is all in the packaging. That is why drinks companies are really into the packaging, because the carbon impact of what is inside is not particularly important. The challenge for the food and drink industry is looking at all these sectors. They all have their different nuances.

Q17 David Simpson: It is probably not very PC to say this, but are we overprotective of our food when it comes to packaging? If you go to the European Union, you go to France or you go to Holland, they have the open air markets, the fresh bread being exposed. They have cheeses, hams, salamis and all of that. We are still under the same rules, up until October. Are we being overprotective?

Peter Maddox: I do not know. We have a different culture of buying food in the UK. I have lived in France—

Q18 Chair: Surely the point David is making is absolutely the right one. It is a balance between protecting food safety and not having as much packaging. You are right about your steak, you are right about your fish, but your carrots, your potatoes and all those sorts of things certainly do not need to be wrapped. Do the cheeses need to be wrapped as much? It is a difficult balance though, is it not?



Peter Maddox: It is a balance, absolutely. We are where we are, in the UK, with the culture of how we buy our food. I have lived in France. It is completely different if you go to a supermarket in France. You have a lot more fruit, the fish counter, the meat counter. It is quite different in this country, maybe because we are in a big rush and we love the convenience. We do not have much time. We have to grab something. I do not know, but that in itself is really good question about how we provide food to the customers.

Q19 **David Simpson:** Juliet, you wanted to come in. I apologise for dragging it on, Chair.

Chair: That is fine.

Juliet Phillips: I wanted to make a few comments on the points raised so far. There are multiple drivers of plastic packaging choice and not all of them are directly related to the food preservation. There are also marketing and branding aims. There can be things about cost reduction, trying to achieve economic efficiencies, issues around the convenience market and on-the-go. Addressing these needs a holistic range of solutions. Sometimes it is not a case of saying that plastic simply is about food preservation.

We need wholesale Government policy to ensure there is a level playing field here, to make sure people are not losing out from, for example, taking out of packaging, which might reduce brand aims and things, where the competitors might still have that added shelf space et cetera. In terms of the lifecycle assessments around, say, glass and plastic, it is important to consider the fossil fuel implications associated with lots of conventional plastics, looking at the total lifecycle. If you can keep the glass in a closed loop system over multiple rotations, you might be able to equal out the savings there. Also, it does not take into account the impacts if it leaks into the natural environment. Taking it just from one point of view is not always the most holistic way of addressing the issue.

In terms of vacuum packaging, I agree that it is an issue. Lots of supermarkets, for example, allow customers in the UK to bring their own packaging for over-the-counter things like cheese. It is just an issue of scaling that up, because lots of customers do not realise that service is available, or they are not incentivised to do so by the supermarkets if they are automatically given the disposable single-use container.

David Simpson: That is a good idea.

Libby Peake: I just wanted to make some observations, because it is true that there is not a simple solution overall to this problem, but there are some simple steps we have not yet taken. For example, we were talking about plastic water bottles. That is a thing that is largely not needed in a country like the UK that has fantastic tap water, which is actually much healthier as well, compared to bottled water. Efforts to



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increase the availability of water fountains, much more than we have seen so far, would be very welcome.

There are also issues to do with the packaging of fresh produce in grocery stores. Defra has released some guidance on when you should offer fruit and veg in plastic packaging. For the most part, they have not said explicitly in any category, "This should definitely be offered unpackaged". The reason is that, when it is stored at home, it will last longer if you store it in a plastic bag.

My observation on that is that you do not have to sell it every time in a plastic bag if people know how to store it instead at home. In any case, what most likely happens is that people get the produce home, take it out of the plastic bag and store it wrong. You have the packaging there, which is not being used properly, and then people are not even storing the food in the right way. There are some simple steps, and then some much more complicated steps to do with educating the public, that definitely need to be taken.

Q20 Chair: It is easier for Government to have rules on how the packaging is done in the first place than it is to actually lay—well, not lay down laws, but that has to be down to education and trying to get the message out that at home you can handle the food in a different way. That is more complicated. I am not saying we should not try to do it, but it is much more difficult.

Sarah Greenwood: I would like to emphasise the need for the packaging during part of the supply chain before it gets to the consumer. Customers might be able to buy cheese loose and meat loose from supermarket counters, but that will have been delivered to the supermarket in plastic packaging, unrecyclable plastic packaging. The supermarket has tighter control over how it disposes of it, but it is still plastic packaging. The consumer just does not see it.

Q21 Chair: We do not want to talk about cheese all afternoon, but you can have a traditional truckle of cheese. It usually has a linen wrapper on it, and it is brought and you cut that up. You do not necessarily need to have it in plastic. Again, going back to how we manage food, it is the way we have got used to bringing things that are pre-packaged, pre-digested and almost pre-eaten. We have got used to all that, and that is going to be a much more interesting challenge.

People are very interested in the environment, but they are also very interested in the lifestyle they have got used to. Our cheese comes in a square block and is wrapped in plastic, but it was not made like that. A lot of things are like that. It is going to be interesting, how much we can do. A supermarket could, theoretically, bring in the truckles of cheese, cut them up and serve them. It is going to be quite difficult to do. I accept that, but it is how far we go and how wide we go. You are right that it is down to the big retailer as well as the consumer. It is going to be an interesting education for all of us, really.



Q22 Dr Johnson: Talking about the alternatives, we have talked a little about the alternatives to plastics. There are also alternatives within plastics, are there not? I remember reading somewhere that a lot of the higher-end meat and fish products are packaged in black packaging, and that cannot be recycled, whereas there are other types, like white plastic, that are more recyclable. I have to say, when I am putting stuff in the bin at home and working it out, and children say to me, "Which bin does this go in?", I had presumed that all plastics went in the same one. To what extent do you think I am an exception? Do you think most of the public understand that, or do you think most people do not realise which plastics are recyclable? What can we do to make sure people use the right alternative?

Juliet Phillips: It is important to look at both angles, both the consumer who is trying to work out the complicated system, which can vary from borough to borough, let alone council to council, and making sure the retailer is taking action to reduce these hard to recycle plastics to make a much simpler system in the first place.

Q23 Dr Johnson: I do not want to get into the recycling bit, because that will come a bit later. What I am getting at is to what extent the supermarket or the large retailer comes under pressure to change from the black plastic that is seen as a high-end product to the white plastic, when probably a large number of people do not know there is a difference, in terms of recyclability.

Libby Peake: Black plastic is a very good thing to bring up, because it demonstrates a few things. The only reason that black plastic as it is currently formulated is not recyclable is that the ink used in the plastic, carbon black, is not identifiable by the near-infrared sorters that are used at materials recovery facilities. There are various options being explored at once, which is slightly unhelpful. It illustrates that we are not taking a systemic approach.

Some people are looking to get them to be identified as they are currently used. Some people are looking to change the formulation so it does not use carbon black; it uses another black ink to be identified. Some people are outlawing it. Even within the Government consultations, one consultation was talking about potentially banning black plastic, and then another consultation, the consistency one, was talking about potentially including it in the list of materials that local authorities had to collect.

This is just one thing, but all these different approaches are taking place at the same time without any sort of systemic oversight. If you want black plastic, you could have one solution. You could change the formulation. You could ban black plastic on the grounds that it is not recyclable, or you could change the sorting equipment so that it could be. If you are doing them all at once, it is not a joined-up approach.

Q24 Dr Johnson: Is it not a sign that actually the country is looking at every



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available opportunity to find the best way to do it? Is that not more sensible than looking at one and finding it does not work and then looking at the next? If you look at, say, diesel vehicles, I know that is not plastic packaging, but because of one particular issue everyone was told to buy diesel cars. Now we are being told actually that was probably the wrong decision. We did not look at the whole picture, so looking at the whole picture from the start is possibly more sensible.

Libby Peake: It does not feel like it is looking at the entire picture, though. It is looking at one problem and going off in different directions with that problem. The different solutions cannot all work together, but it seems like they are being tried at the same time.

Peter Maddox: I do not think you are the exception here. The challenges around black plastic for the consumer are real. First, one of the challenges is that all the local authorities do something quite different. The idea is that, hopefully through the new policy being developed by Defra, we will get more consistent collections. One of the great things is that recycling in this country is about 43%. That is pretty amazing from where it comes from. The UK I think has one of the fastest growths in recycling rates in the last 10 or 15 years, but it has flattened. It is almost becoming a social norm. Consumers get that recycling is a good thing.

On the black plastic side, the UK Plastics Pact is not trying to literally tell people what they should do, but just provide the right parameters for them so they address the full system. We have seen that quite a few of our members of the UK Plastics Pact, supermarkets and brands, have moved away, as you suggested, from black. They are moving to clear plastics. There is a much better market for it. It is easy to recycle.

There are other people who are thinking that black plastic actually has an economic value. It is very cheap to produce. It tends to be a sink for lots of offcuts in the industry. The way that certain members of the industry have tried to address it is, rather than putting carbon black in there, which is not detectable by the sorting equipment, to put a new dye in there that is detectable. It costs them a bit more, but it allows them to use black plastic. Both solutions are valid. Both are recyclable.

We do not think, in the UK Plastics Pact, certainly in our WRAP philosophy, we should be stifling innovation and stopping people coming up with good solutions, as long as they are looking at the whole systemic issue; they are ensuring that whatever they put on the market can be collected, consumers are not confused, it can be recycled and we get those plastics back into the economy, where they add a lot of value.

Q25 **Dr Johnson:** Say you are using an alternative to plastic. For example, in our canteen here, they have replaced plastic bottles of water with metal tins of water. Quite apart from the fact it tastes slightly strange, surely it would be better just to have a glass and refill it from the tap. What assessment is being made to make sure that we do not do what we did



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with the cars, which is to replace something with something that is worse for the environment? I can see there is an issue with how we dispose of the waste and making sure it is not ending up in the oceans, stifling marine life and sticking around for ages. That needs to be addressed, but what assessment is being made of the environmental impact of the alternatives to plastic?

Libby Peake: I will make an observation, which is similar to the diesel. I do not think anywhere near enough people realise the origins of plastic. Plastic was actually invented to prevent an environmental catastrophe. The elephants were about to go extinct because we were making so many billiard balls from ivory. Celluloid was the first industrial plastic and it was invented explicitly after a call to find a substitution for ivory in billiard balls. There is an amazing pamphlet from celluloid, from its early days in the 1890s maybe, which says, just as petroleum has come to the rescue of the whales, so has celluloid given respite to the elephant, the coral insect and the tortoise in its native haunts; it will no longer be necessary to ransack the earth in pursuit of resources that are growing ever scarcer.

It is easy to say in hindsight that we made the wrong choice. We created something that got out of control and has really changed the way we consume. It has allowed a single-use culture to develop. We can see that in hindsight, but I think we have extensive foresight on the issue now, and history will damn us if we do not use it and make sure we are not just searching for a simple substitute for plastic. That would definitely be the wrong thing to do in this instance.

If you are just taking the same system we have now, which uses far too many resources, you are not going to be able to meet the needs with any sort of material, I do not think. You cannot have a wholesale switchover to bio-based plastics, to aluminium, to glass, or to paper, which all have environmental consequences themselves.

Dr Johnson: At some point, yes.

Libby Peake: Yes, exactly. You really need to start thinking about the system and reducing the use of materials overall, wherever that is possible. There are plenty of instances where it is possible and we have not yet done it.

Juliet Phillips: I would totally agree with what Libby just said. In line with the waste hierarchy, it is really important to focus on reduction and reuse as the first priorities, rather than a simple substitution of one for another. There have been a few examples recently from the supermarkets when they have shifted. For example, Morrisons has moved from single-use plastic bags to single-use paper bags, Iceland has switched its plastic wrapper for bananas into a paper band for bananas and M&S has moved into single-use wooden cutlery. In all those examples, there could be a reusable, or, say, for bananas, they already come in packaging.



Dr Johnson: You do not need to do anything.

Juliet Phillips: Exactly, you do not need anything at all. Focusing, where possible, on reduction and reuse first would reduce these pressures on virgin materials and resources.

Peter Maddox: It is a really interesting debate, because it starts getting on to this whole issue about consumerist convenience attitudes that we have. We are growing up in this environment where people want that convenience. If you look at a plastic bottle of water, that plastic bottle is extremely well designed. It is completely recyclable. It often has a very high recycled content in it, and actually it has one of the highest recycling rates of all packs out there.

Q26 **Dr Johnson:** Would we be better with those than with metal cans of water?

Peter Maddox: No, it would be far better for the environment if we all moved to reusable and took our containers. There is absolutely no doubt about that. The question is about taking away consumer choices. Some people like buying a bottle of water. I sometimes forget my refillable bottle when I go to work in the morning. Hopefully I try to find a tap, and I have to confess yesterday I bought a plastic bottle even though I do not like it, but I thought, "I need a drink". Not everybody wants to carry a reusable bottle around with them. It is getting into the territory of what we are expecting consumers or citizens to do. Are we going to enforce a certain way of life on them or are we going to give them the choice? It is a very difficult issue around behaviours.

Q27 **Alan Brown:** You kind of stated the obvious that the use of plastics extends the shelf life of food. How do you get the balance between reducing plastic pollution and that need to extend the shelf life of food?

Juliet Phillips: The correlation between food waste and plastic packaging is not confirmed by any means. For example, both of them have risen simultaneously. A recent report from Friends of the Earth Europe showed that stats on food waste and plastic packaging waste have gone up together. A lot of food is still thrown away in the plastic packaging. I think there was a figure from WRAP that said 37,000 tonnes of pre-packaged salad was thrown away in 2017. The correlation there is not simple. We need to look at a whole range of drivers, which Libby was speaking to earlier, including consumer behaviour and other factors in the supply chain, just to challenge the premise that it is a simple correlation.

Q28 **Alan Brown:** Those consumer behaviours tie in with education about use by dates, best before dates and that, and understanding what the real shelf life of the food is.

Libby Peake: Plastic extends the shelf life of some products, but we have not seen that mean the food is not wasted. There are some instances where the plastic packaging can contribute more to food waste. If you are looking at things like fresh salad, you can sometimes only buy



them in one pack size; for fresh herbs, you can sometimes only buy them in quite a large pack. If you only want a handful of coriander and the supermarkets are only offering you a large pack, the odds are that it will create a lot more food waste. It is not always a simple case that plastic extends the lifetime of food.

Q29 Chair: It would be fair to say that a small package of whatever in a vacuum pack would last longer. I do not think you can get away with that particularly. You could say it is probably right that we sell the right kinds of amounts for people to buy. It is too glib to just say, "Oh, well, of course you can get away with all packaging"—not necessarily, you see. This is where we have to have a balance between what we can reduce and what we actually need. It is too simple to say we can just do away with plastic packaging altogether. That is the bit I am yet to be entirely convinced on.

Sarah Greenwood: Going back to the salad and the herb examples, it is all about the supply chain we choose to use and the choice we have. I did it myself the other day. I wanted a tiny bit of dill and I ended up buying a whole packet and throwing it away. Tesco is not going to sell unpackaged dill. Its waste figures would be enormous if it did that. I have worked in a retailer. I worked as a packaging technologist in the head office produce department. The waste figures would just go through the roof. It is the same with bagged salad.

If you wanted the choice to have a watercress, spinach and rocket salad with your pizza for tea, the alternative would be to buy a bunch of watercress, a bunch of spinach and a bunch of rocket. They would have to be supplied. You would have to be able to choose exactly the amount you wanted. The Norwich market is brilliant for buying that sort of thing. They sell it in water, so they sell them like cut flowers. You can do that, but you cannot get it from Tesco at half past seven on your way home from work. There is this balance here about the consumer convenience versus waste. The waste is displaced from the retailer to the consumer. We need to look at the whole supply chain, from producer to the consumer's fridge.

Libby Peake: Ideally, you would have much more self-reliance, or reliance on the small retailers, or window boxes with herbs in them. Even within the supermarkets, there was discussion yesterday when the food waste commitments were launched about offering different portion sizes. There are steps you can take even within this system where convenience is king, where you could offer people things in different sizes, which means that it would not necessarily result in so much food waste.

Chair: Yes, and not quite so much packaging of course either.

Q30 Alan Brown: Libby, you made the point in an example with coriander in terms of plastic packaging and the size of a portion. Is that another consumer behaviour or education thing? I am looking at a personal example where I bought coriander, but it is now in my freezer because



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the plastic wrap makes it handy to keep in the freezer for future use. I have all sorts of herbs I keep that way. Is that not possibly another education issue?

Libby Peake: Yes, we need a lot more education on how to store food. People are largely storing a lot of food in the wrong way, which results in a lot more food waste and, in some instances, necessitates the use of plastic where it otherwise would not be needed.

Peter Maddox: The issue about food waste touches so many things. It is basically about what people buy and what they use. What they buy is all about what is on offer. It is also about the portion size. It is about the special offers. It is about going to the supermarket with your shopping list and then buying a lot more than what you have on your list, things like that. It is also when you go home. Do you store your food properly? Do you freeze it when you need to? It is very complicated, so there are a huge amount of behaviours and, to some extent, some technology, in terms of pack design and portion size, that influences that.

It is very difficult to make a correlation between the packaging waste and food waste, but undoubtedly there is some good plastic packaging out there. That is really ensuring that food lasts a long time, it is packed well and, more critically, it is kept safe for consumers. We must not forget about food safety. Talking about portion size, if I may, my youngest left home in September to University, so when I go to the supermarket now I buy half a loaf of bread. You can get it. As a consumer, somebody who is admittedly quite aware of food waste, buying the half loaf makes a lot of sense to me, because that is what my wife and I can eat in a few days. There are lot of consumer changes going on.

Chair: Yes, there are almost lifestyle changes that are needed.

Q31 **Alan Brown:** On the answer you gave there, Peter, the British Plastics Federation states that food waste has a significantly higher environmental impact than the packaging itself. They are arguing that, if you allow the food to waste, it is far worse for the environment than plastics and plastic pollution. Would you challenge that?

Peter Maddox: One of the challenges when we talk about environmental impact is what metric you are looking at. If you look at climate change, if we want to keep under 1.5 degrees, we have to completely rethink the food system. You cannot address climate change without addressing the food system. When you look at climate change from farm to fork, the carbon impact of our food globally is enormous, absolutely enormous. Within that, food waste is enormous, because a third of all the food in the world is wasted, so you have to address food waste.

The challenge we have is that, when the British Plastics Federation makes comments like that, it is really talking about climate change, but then, if you look at the damage done to the oceans, plastics have risen up the agenda. I am saying that, yes, it is complicated. You need to look at



damage to the environment through many different lenses. The challenge for us all is to address all these issues in a balanced way. I am convinced that we can rethink our food system. I am absolutely convinced we can do that and innovate around packaging, so all packaging placed on the market is recyclable and reusable. That is the challenge for innovation and for business. It is the challenge for NGOs and stakeholders to make that happen.

Sarah Greenwood: There is just a point I feel I ought to make here on the ocean pollution. I do not have the reference from the report here, but I can provide it to you.¹ Something like 80% of plastic pollution in the ocean comes from 10 river catchment areas and they are all in Asia and Africa. They do not come from the UK. Believe it or not, we manage our waste fairly well. Okay, there is a question mark over what we send abroad and what happens to it when it goes abroad. I just think we need to emphasise that, if we ask, "What can we do about ocean plastic?", it is about how we help developing countries develop their waste management systems, because ours is pretty much there. It does not seem like it at the moment, but it needs tweaking.

Chair: It is an interesting point you make.

Libby Peake: It is true that countries that lack basic waste management have a lot more trouble stopping plastic from getting into the ocean, but the statistic on the proportion of plastic that gets into the ocean is quite often misquoted. It is actually the proportion of plastic that gets into the ocean from rivers that comes from 10 rivers, so it is a bit more nuanced than that. A lot of the plastic that is in the ocean does not actually have anything to do with plastic packaging. Quite often, it comes from maritime waste, and from nurdles and things like that, happening in other places.

It is also quite important to remember that we export most of our plastic packaging abroad. When we are talking about these countries where the plastic is originating from and where the plastic is more likely to be mismanaged, quite often it is our low-grade plastic. We need to take more responsibility for that.

To reiterate what Peter said, I wholeheartedly agree with what he said about the food system. To go to the original question about lifecycle analyses, the lifecycle analyses are measuring carbon. You are not going to get one simple measure that looks at both carbon and the environmental risks that come from polluting the environment with plastic. You cannot just take one on its own. You definitely have to look at it from multiple angles.

Q32 **Alan Brown:** Clearly, as a Committee, we will ultimately be preparing a

¹ Note from witness: "Export of Plastic Debris by Rivers into the Sea" by Christian Schmidt et al., in *Environmental Science & Technology*, Vol. 51, No. 21; November 7, 2017



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report. How does a Committee of politicians and effectively laypeople on some of these subjects get to a stage of having a clear understanding of the risks of that carbon lifecycle versus actual pollution and damage, to make clear recommendations?

Peter Maddox: There is some pretty good work being done on marine pollution. You probably have already heard from Professor Richard Thompson from Plymouth University in your time. He has been working on this for over 20 years and then suddenly he is world famous. He is also actually a supporter of the UK Plastics Pact, I am glad to say. Anyway, going back to your point about the lifecycle assessment, we are only really getting to the bottom of understanding the whole issue of getting data on marine pollution.

We are in a very challenging time at the moment. We know quite a bit about carbon, water impacts, energy and maybe recycling, but we are in a period where we are really trying to build up the knowledge base on marine pollution so we are able to take that judgment call of how we look at all these things through multiple lenses. I am pleased to say that the innovation agencies in the UK are trying to stimulate lots of research and get some more insights into what is really going on with plastics in the ocean, what is really there, if it has anything to do with packaging or if it is something else.

Meanwhile, we have an environment where there is a huge amount of public interest. There is lots of media stuff about terrible things going on, and I agree they are terrible. We do not like to see them, but we need to get the facts right. I hope we can really build up a better understanding on marine pollution. There is a lot of work to be done.

Juliet Phillips: Can I just come in on a few points? I agree with Libby on the point about the rivers. A recent study from the Earthwatch Institute found that 35% of items found in freshwater—the rivers are basically the passageway into the sea—in the UK are packaging or plastic food and beverage-related items. It really is an important issue to focus on in the UK, as well as its global impact.

I also wanted to mention that it is not just at the end of the lifecycle, when the item has been used up. Plastic has impacts further up the value chain. For example, the production and manufacturing of plastic also comes with problems. There was a recent report out that showed there were health and pollution costs all the way from extraction, when you are involved with the fossil fuel in production, right through to consumption, transport et cetera. You cannot just look at it once it becomes a piece of disposed plastic.

Also, pre-production pellets are a massive source of plastic pollution. These are used in production of all plastic items. It is the second largest source of microplastic pollution into the oceans. Plastic packaging represents about a third of the demand for polymers, so you can see a bit



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of correlation there between how much, if we are reducing plastic packaging, we could reduce these upstream risks as well.

Chair: Yes, we have to look through the whole cycle of it.

Q33 **David Simpson:** During the evidence, Libby, you have mentioned the storage of food. Peter, you talked about buying half a loaf. The Chair has talked about the culture we have of purchasing. If you remove plastic film from meat, cheese, whatever to put into your fridge, within 24 hours it will dry up. If you buy a crusty loaf from one of the supermarkets on a Saturday morning, which I am very fond of, as you know to look at me, on Sunday morning, if it is not wrapped, it is as hard as the road and you could not eat it. Is it the case that the whole culture the Chair has mentioned, the culture of purchasing, has to be changed? Some people do a weekly shop. Some people do a monthly shop. Do we have to change that culture to go nearly on a daily basis or every other day? How do we address that?

Libby Peake: The challenge is even larger than that in the UK, because you are right that the shopping habits favour that sort of system. Also, we consume a lot more on the go than any other country in Europe, so things like pre-packaged sandwiches, which have even more packaging relative to what's in them, and things like coffee consumed on the go. These are not as big a problem in countries like France or Italy as they are here.

It is quite challenging to tackle, but if you tackle it I would say there probably are some additional social benefits you can get from, say, encouraging people to sit in a café for a moment and have a drink with a friend or something like that, rather than hurrying down the street and stuffing a sandwich into your face from a bit of plastic packaging. There are rewards in a social context if we can tackle this behaviour, but it is a large challenge in the UK.

Q34 **Chair:** We can do many things in our report, but whether we can actually change the whole concept of it—

Libby Peake: Oh, go on.

Chair: It needs to be talked about if we are going to make a real difference in the end. Over time, these cultures will change. Look at smoking. A few years ago, you would have thought people would not have given up smoking, they would be very upset to be told they could not smoke inside and so on, whereas now it is completely unacceptable to smoke inside and fewer people are smoking, so it can be done. It can be done.

Q35 **Kerry McCarthy:** Can I ask about the circular economy proposals? Starting with Green Alliance, it said in some research that the UK could support a total of 45 high-quality closed-loop plastic recyclers if plastics were designed better and there were better recycling and collection services. Could you say a little more about that and what the potential is



for closed loop systems? How much better could it be than it is now?

Libby Peake: One of the main points you want to take from that report, which is called *Wasted Opportunities*, is that a lot of this is down to design. Designing things to be recycled in the first instance is the most effective way to make sure they can then be recycled. It needs to be paired with much better collection systems than we have at the moment. That report was looking at the five most commonly used polymers. It was not just for packaging; it was also looking at end-of-life vehicles and electronics.

In general, one of the main things you want to see for a circular economy is much more joined-up action throughout the supply chain. You want to get designers talking to the people who are going to be collecting and to the people who are going to be recycling. That is one of the main barriers, that design courses very rarely have anything to do with circularity in them. If you do get it, it tends to be in upper-level voluntary classes people do. If you can start embedding much more of a culture of circularity in the design courses to begin with, that would have a major impact.

Q36 **Kerry McCarthy:** Have you given any thought as to how that could be achieved? Are there certain incentives? Maybe that is a question for WRAP, because I know WRAP has been doing work on that. You particularly led on the circular economy stuff at WRAP, did you not?

Peter Maddox: Yes. We launched the UK Plastics Pact just over a year ago. We have over 100 members now. A lot of those are businesses that place packaging on the market. We are nearly one year on and we will be publishing our 'one year on' report next week, so I am very happy to share that with the Committee next week.

On the circular economy, what Libby said about the idea of joined-up thinking is absolutely right. Some people call it systems thinking, but basically, if the circular economy is going to work, everyone has to get some benefits from it. There cannot be any big dis-benefits in the system. What we have seen over the years, when you look at plastics packaging for instance, is that too much packaging has been put on the market, poorly designed, not recyclable. What we have seen over the years is the build-up of challenges for local authorities, not sure whether it goes into the bin or not, consumers getting confused.

If you look back at how the design of plastic packaging has been thought of in the last 10 years, it really has not been considering end of life. It is not what I call good producer responsibility. What we are looking for going forward, and we are driving in the Plastics Pact, is making sure that what people put on the market is recyclable and that it has high recycled content. We are driving them towards this kind of vision. In terms of design, I always find design is very esoteric. It sounds incredibly complex and creative, and I know some design is incredibly creative but there are some very simple things that producers can do. First of all, they can



basically remove PVC and polystyrene from packaging. There are other very simple things. Do you remember on some plastic bottles you have the tethered top, the top that stays on the bottle? If you look on the beach, how many loose tops do you see? We say to our members, "Why do you not just put tethered tops on your bottles?" It is just a simple thing.

Another thing we find is that people design a plastic bottle and then they put a film round the outside so it cannot be detected. We have been insisting that people reduce the size of the label to 40% of total surface area. That makes a huge difference. We are getting people to move out of black. We have heard about some really interesting innovations where people are trying to design a drinks pack that does not require a straw and is all integrated. If you get people to think about end of life, the design is there. Sometimes it is quite a simple thing. Design is critical.

Q37 Kerry McCarthy: There is that thing where they are notionally recyclable. I have had conversations with bottle manufacturers, and the sleeve is notionally recyclable and the bottle is, but not if they are attached to each other still. I think Pringles was highlighted as one of the worst culprits because there are about five different elements to a Pringles tube, so it is the cardboard, a little metal bit at the bottom and a plastic lid. You do not know which recycling section to put something like that into and end up just putting it in the ordinary bin.

Peter Maddox: It is clearly driven by marketing. Businesses need to sell more stuff. It is driven by cost and it is not driven by thinking, "What is going to happen to my pack when it leaves somebody's household and goes into a recycling system?" When I first joined WRAP, I did a piece of work on milk bottles and we tried to make them more recyclable, through very simple things. Do you remember when you had the caps of all different colours, red, green and blue? If you remember, 10 years ago, they were quite dark and very intense. We said to them, "Why do you not just take them out and, instead of making them deep green, make them light green, light blue and light red? When it then goes back into the system, the clear polymer can tolerate a small amount, so it just helps it". It is simple. They said, "This is really, really easy. It is cheaper".

Q38 Chair: The plastic is less polluting as you recycle.

Peter Maddox: Yes, it is getting designers, manufacturers and producers to think about what is happening at the end of life.

Q39 Kerry McCarthy: You said 100 different bodies were involved. That is a voluntary approach, presumably.

Peter Maddox: Yes.

Q40 Kerry McCarthy: Is that sufficient or are there legislative measures? I am also on the Environmental Audit Committee and we have done quite a lot on packaging recovery notes and changing the whole extended producer responsibility. It is very difficult when you have a company that



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wants to produce something that, as you say, looks good, is easy to transport, and they are worried about keeping the quality of that. I am not suggesting interfering in that market as such, but are there incentives or disincentives that would encourage them? Juliet wants to come in on that. What needs to be done to persuade Pringles to repackaging its Pringles?

Juliet Phillips: Just to start off, when I think of a circular economy, I think of not just recyclable but also reusable. It is important to make sure that form of packaging is also being incentivised, as well as recyclability. At the moment, we welcome the voluntary actions, but they just represent a patchwork of what is really required. When you look at reusable in particular, they are often limited to a very small number of stores and product lines. There is much more needed to scale this up and this will need Government support.

We have seen this in other European countries where there are policies and targets in place. For example, Austria has just finished consulting on a reduction target, which will be 20% to 25% plastic packaging reduction by 2025. Germany has a refillable target for beverages of 70%. They are currently looking into a political tool to implement this. These kinds of signals will help businesses to have the confidence to make the investment in retrofitting supply chains. Of course, there will be costs with retrofitting the supply chains to allow further reusable business models. That would provide the certainty and the stick as well as the carrot, I suppose.

Sarah Greenwood: Reuse is very much part of the Plastics Pact, so all the signatories have agreed in principle to make their packaging reusable, recyclable or compostable. It is an under-researched area. It is something we are looking at, at the University of Sheffield. We are looking at how we can make it work and we have polymer scientists, environmental scientists, looking at lifecycle analysis. We have social scientists looking at why it has not worked in the past and, when people have used reuse systems, why they have drifted away from them. Then we have psychologists looking at how we turn this from quite a niche activity, because there is some reusing activity going on, into a mainstream one and change people's behaviour. This is a very new area at the moment.

Q41 **Kerry McCarthy:** From the point of view of the packaging industry, it is not in its interests to reduce the amount of packaging that is produced, because it is making money from that. If you are a coffee cup manufacturer and everyone converts overnight to carry around their KeepCups—if only—you are going to go out of business. What is the dynamic there?

Sarah Greenwood: It is adapting and changing. It is a different business model. Innovative companies should be looking at this.



Juliet Phillips: We need to make sure we have a level playing field, so people are not penalised for making those steps ahead of other companies. There is the example of Boston Tea Party.

Kerry McCarthy: I am a Bristol MP, so it is just up the road. They lost something like £250,000, they said, so they banned disposable coffee cups. You can buy really cute little KeepCups in there and they do very nice coffee. That is a bit of a plug for them.

Chair: You are not here to advertise them.

Q42 **Kerry McCarthy:** They said they lost some passing trade. There is a Costa down the road that people pop into instead if they do not want to buy a KeepCup.

Juliet Phillips: That is why policy is really key, as well as voluntary actions.

Libby Peake: I just wanted to point out that, in terms of policy measures that you could use to incentivise recyclability, the consultation covers one such policy that could very effectively incentivise much more recyclable packaging, which is the replacement for the PRN, where they are saying they want to have potentially modulated fees. That means that producers would be charged based on the recyclability, and presumably you would have a body of experts from throughout the supply chain that would be able to determine what can be classed as easily recyclable and what cannot.

There are models that you can point to, such as in France, where they have modulated fees. The feeling I get from them is that they are probably not modulated enough to drive change too much, but they have successfully driven some unrecyclable products off the market because producers are charged double if they are putting something on the market that is impossible to recycle, and I think 50% more if it is hard to recycle. Those sorts of incentives that are potentially going to be brought into the UK can be very useful in driving recyclability.

As Juliet pointed out, though, they are not necessarily designed, as they currently stand, to incentivise reuse or reduction. That is one area where more policy would be needed, as well as a more level playing field for businesses that are doing the right thing, and more innovative business models. Picking up on the example of coffee cups, we have a consumer-convenient culture where people get a cup, use it for a few minutes and dispose of it. There might be some innovative examples of new business models where, if there is a group of cafés in an area that are working together, you can give people a reusable cup and then have the infrastructure on street to potentially collect it. From a consumer point of view, it would be exactly the same: they do not have to carry around a KeepCup with them; they can pick up a cup in the shop and then, as they are out and about, put it in a place where it can be collected from and reused. That would potentially be a really good thing but it is a really big change from where we are at the moment.



Q43 Kerry McCarthy: You would need a deposit return scheme or something, so that people did not hang on to them, I suppose.

Libby Peake: Yes. You get those in festivals, so you might sometimes pay £1 for a pint glass and then you return it at the end. Those systems are in existence in niche areas, but not yet widely across the economy. There is a large potential for that to increase, but it is not necessarily going to do that organically without Government support.

Kerry McCarthy: That is interesting. I will let someone else go.

John Grogan: Yorkshire cricket has a similar scheme for cricket matches.

Libby Peake: I am not a cricket fan so I would not know.

Q44 John Grogan: Moving on, I was going to ask about the Government's approach, particularly the proposed plastic packaging tax and the reforms to the packaging producer responsibility system. Do you have any thoughts?

Peter Maddox: It is absolutely superb that the Government have seized the opportunity now to address this. It has been a few years. We have four consultations, three from Defra and one from the Treasury. There has been a lot of very good engagement with the industry and the whole supply chain, and it has created some really good conversations. I absolutely welcome those and we have worked very closely with Defra on this, but the challenge we have going forward is to see how they all join up.

We can look at things like EPR, producer responsibility and consistency. You can see how they are going to work and see how it is going to interface with the Treasury's plastics tax. The interface with DRS is going to require some more comprehensive work. We know that Defra is looking to do a more holistic single impact assessment to see how all these things will work together, having received all the feedback from the consultation, to try to see what the best option is. In WRAP, we really welcome the consistency work. A lot of that work is based on something that WRAP has been promoting in England for a few years now.

We also think the EPR work is to be applauded. There is a real drive from industry. Going back to systemic problems, there was a complete lack of transparency in the system about where the money was going. Some of the proposals put forward by Defra will address some of those things. I particularly like the principle in the resources and waste strategy that the polluter pays. It is fundamental that the polluter pays. Producers will have to pay a significant amount of the costs of recycling and disposing waste. It is to be applauded, because that will force some of those very producers to start innovating and working out how they can reduce the amount of packaging and make it more recyclable. On the consistency and the EPR, that is to be applauded and it should be moved forward very quickly.



Q45 **John Grogan:** Do you have any other thoughts, Juliet?

Juliet Phillips: Similarly, EIA would agree that it is an improvement on the status quo. There is much focus on the current consultations on improvements to recycling and recycled content, which is an important part, but given the scale of the problem, and the gulf between the consumption of plastic and current recycling facilities, particularly in the UK, much more focus is going to be needed on reduction and reuse, which we are not seeing so much of in the consultations currently underway. There are opportunities through the extended producer responsibility reform to encourage design for reuse as well as recyclability, which is how the EU first conceptualised extended producer responsibility to be introduced, particularly for packaging. It will be in line with that for us to focus on encouraging design for reuse as well as recyclability.

On the extended producer responsibility, we also believe there is a need for the full lifecycle of all packaging materials, not just plastics, to be internalised in the full costs. We were talking earlier about the unintended consequences of shifting, say, to more paper. If we could consider the sourcing and production costs when we think about full costs as well as the waste disposal, that would be a welcome way of avoiding, or at least mitigating, that risk. On the tax, because it is just focused on plastics, we see again a risk there that producers might substitute one single-use material for another if, say, other items are not included within that tax. We would see that as an area where we would encourage more action.

John Grogan: I see Sarah has made a couple of notes there.

Sarah Greenwood: That is exactly what I was going to say. It is really good progress, but there is danger in some places where you are replacing one packaging material for another packaging material, when actually you could get rid of it completely. As an example, I do not like calling out people, so this is fairly generic. Tinned tuna always comes shrink-wrapped. There is no need for that at all, in my opinion. Somebody else might disagree. They might say they want the consumer convenience of being able to pick up four tins of tuna at once.

Chair: We have got used to four tins of tuna.

Sarah Greenwood: If there is a discount involved you can apply it electronically at the till. There are other examples like beer cans. You cannot buy a single can of beer. Everything has these rings on them. Everyone is making all these alternatives to rings, but do we need them at all? There is an argument there. The consumers might not buy it if they do not want it. There is a commercial discussion.

Q46 **Chair:** Likewise, we want fewer plastic bags used. It is fascinating once we get into this argument, because the discussion—it is not really an argument—is about whether you want individual cans that you then have to put in something or you want to pick up a pack of cans. It is the same,



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to a degree, with your tuna. You are right in what you say, but then we have to make sure we take our bags with us, so we do not have to have new ones and so on. A lot of people are doing that, but it is about making sure people do more of it.

Libby Peake: I agree with what everyone has said so far. It is an improvement, but there is still some way to go. There are some specific things you can point to that might potentially improve what happens, specifically with the plastics tax. I share Juliet's concern that, as it is just addressing plastic on its own, it might push people to another single-use item where that is not necessary.

There is quite a considerable loophole at the moment, as the tax is formulated, to do with imports. At the moment, the proposal is that the tax will only apply to packaging that is imported in an unfilled state. That means anything imported in a filled state is going to avoid the tax, which is potentially incredibly problematic because that would incentivise large companies, especially, that have quite complex supply chains to shift their production overseas. That means you would be losing out on the environmental benefits of using more recycled content, but also on the economic benefits of producing packaging and whatever is in the packaging in this country. There is a real risk that it is going to shift supply chains abroad, which would be an incredibly perverse outcome, if it did damage to the UK economy in that way.

From an economic perspective as well, one of the things we are not seeing in the proposed reforms is a necessary incentive for people to build the reprocessing infrastructure in the UK. Kerry quoted the figure earlier that we could potentially support 45 high-quality closed-loop recycling facilities. As things stand, I do not think there is any guarantee that that is going to happen. The Government are hoping that, by having better-designed products and better collection systems, that means the private sector is going to step in and build the necessary reprocessing infrastructure. There are far too many uncertainties for them to definitely be willing to do that at this stage, to the extent that they could do.

Q47 **John Grogan:** I have one final question, following on from that. Is there a danger that, if you have more incineration capacity, that will act as a perverse incentive not to encourage investment in recycling?

Libby Peake: Absolutely. For the past 20-odd years, the only major waste and recycling infrastructure that has been bankable in the UK, that investors have been willing to put money into, is incineration. That is not going to change with these measures on their own. You need more Government intervention and incentive to use domestically reprocessed material if you are going to get more infrastructure that is higher up the waste hierarchy.

Q48 **John Grogan:** Possibly even an incineration tax.

Juliet Phillips: We would encourage a ban on new incineration capacity.



Q49 **John Grogan:** A moratorium, yes.

Juliet Phillips: There is some analysis to suggest that burning certain types of plastic can be even more carbon-intensive than coal. With the UK having just declared a climate emergency, it would be imprudent to go down the route of incineration.

Peter Maddox: My No. 1 concern about building a circular economy for plastics packaging is around the investment in reprocessing. I agree with my colleagues. We have a really good green finance industry in this country and it has invested hugely in renewable energy over the years. It is concerning that, even though we are starting to put in very strong market signals with the consultations about people having to put recycled content and the quality of collections, we need to work very hard on that. WRAP is going to set up an investment symposium towards the end of the year, to try to get the green finance people together and say, "Look, there is an opportunity here", and explain what the business case is. It is all dependent on exactly what comes out of the legislation and how tough the measures are going to be.

Chair: That was further to your question in Defra questions on incinerators, was it not?

John Grogan: It was.

Chair: I spotted you the other day.

Q50 **Dr Johnson:** I would like to ask a bit more about the recycling and how it is done on a home basis. This is something one of my constituents came to my surgery about just last Friday: the inconsistency between what different local authorities are able to recycle and how they ask their population to do the recycling. Some places have two, three or more bins to separate it at the home. Other people separate it at the depot or somewhere. What do you think about consistency? Do you think consistency is important or do you think it would bring us down to a lower level of recycling in some areas?

Chair: Go on, Libby. You look like you want to come in.

Libby Peake: I do have things to say. The example you would probably want to look at for what consistency can achieve is Wales, which has the highest recycling rate in the UK. They have been quite proactive in pushing a certain configuration for their local authorities. They have not mandated it, but they have provided the local authorities in Wales with a lot of funding and incentive to make sure they have source-separated collections, with limited amounts of residual waste collections, and everyone has access to food waste collections. There is a basic standard that everyone has access to in Wales, and that has allowed them to increase their recycling rates quite considerably.

The Government's current consultation on consistency, where they say they are going to propose that every local authority offers a core list of materials that they collect, is definitely going to help. There will be some



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circumstances in which you might want to have a different configuration of bins, but I would say that you want everyone in the country to have access to a similar level of collection systems, and one that allows for much clearer messaging about whether something is recyclable and national messaging to say, "This is what you should do", because at the moment we do not have that.

It causes a lot of confusion, especially in places like London where, if you move from one borough to another, you will have a completely different system. It is too much to ask the public to relearn a completely different system everywhere they go. It would increase the recycling rates if everyone had access to similar levels of service.

- Q51 **Dr Johnson:** I have to say, for my London flat, I am not sure what is available. Kerry mentioned bottles earlier, and the idea that the bottle was recyclable but the sleeve was not. Do you think it would be helpful for manufacturers to include on their packaging, "This item is recyclable provided you take it apart when you put it in the bin"?

Juliet Phillips: Would it not be easier to not have those items on the market altogether?

- Q52 **Dr Johnson:** It might be, but we have talked about the complexity of it, and in the short term that might not be a solution. Many millions of these bottles may be used before someone comes and changes the whole process.

Juliet Phillips: I would agree that, in the short term, that messaging is key. In the long-term, we really need to have sight of a bigger vision where it is not just focusing on talking to the consumer at home, but thinking about how the producer is taking responsibility for using not just polymers but hard-to-recycle formats, with tear-off bits and other things that often escape collection for recycling.

Chair: If you have a reverse vending machine, you want to have the exact bottle going in there to make exactly the same bottle, because a lot of recycled plastic is of a much lower grade. It is only if you have exactly the same product that you can remake it. That is challenge in itself, is it not? Ask one more, and then I am going to let Julian in because he has been very patient.

- Q53 **Dr Johnson:** The other thing is that, as you recycle plastic, it degrades. The chains get shorter. It is not indefinitely recyclable. What happens to it at the end of its life? It is a misnomer. When people say it is recyclable, there is a presumption that it can come in and out for evermore, but that is not the case, is it?

Sarah Greenwood: I suspect that people like Coca-Cola will know and they will have done the research. At the moment, if a bottle goes through the system, it probably only gets recycled into another bottle once, and then it will get turned into PET fleeces, so polyester for fleeces. If you were to capture all the material and recycle it, and have really



good-quality recycling—and deposit return systems do help get really good-quality material for recycling—there is going to be a point where you can only put so much recycled material in the bottles. You are always going to have to add virgin material to keep up the quality of the plastic.

Chair: That is an interesting point.

Libby Peake: That is absolutely true and you also have process losses. If you have one bottle and you recycle it, the most material you get out of the recycling process is probably about 70% of the bottle. There are some technologies that are not yet commercialised that can re-lengthen polymers. That will help extend the number of times you can recycle them. I am not saying it will be infinite but, if it was made commercially viable, we could increase the number of times that these polymers were recycled.

Peter Maddox: I agree with everything that has been said. You should not underestimate how technology is going to come through and make a difference. The other thing to bear in mind is to think about other markets. Food and drink has some pretty stringent food standards and food contact legislation. We have to step back and look at the bigger picture of what we are trying to do. If we do get plastic waste and we want to recycle it, sometimes we need to look at other markets. Polypropylene and polyethylene in particular are very much in demand in construction markets and horticultural markets. PET, you mentioned, can go into a fleece. It is not just closed loop, bottle to bottle. It is more complex than that. As long as you are recycling it, you are still essentially getting the environmental benefits. Bottle to bottle, you will get a good environmental benefit but, if you put a bottle into a low pressure pipe for the construction industry, that is pretty good as well; there is not much difference at all. It is complex and you need to see where the markets are.

Dr Johnson: You still have to keep replacing those bottles.

Q54 **Julian Sturdy:** My question was on recycling. It has been pretty much asked by Caroline, so patience does not pay on this Committee. The only point I wanted to come back on is on the economics. As has been touched on already, lots of local authorities do different kinds of recycling. I used the example of my local authority in my constituency in York. They only recycle plastic bottles. They cite as the reason for only recycling plastic bottles the cost of recycling other plastic materials.

Is there a problem in the recycling system, at the moment, that the marketplace does not work? You have touched on the fact that you have to add new plastic into the process and you can only use a certain amount of recycled plastic. In other areas, we are seeing plastic not finding a home any more, not on the domestic side but on the industrial side of things. Is there a problem now with the recycling marketplace? Is that something that can be sorted?



Libby Peake: Yes, there is a problem. One of the reasons that we are so reliant on export markets to take our low-quality recycling is that we have not designed a system that would make recycling economically viable, unless it is plastic bottles, which tend to have a market. Some of the things the Government are proposing will help. Limiting the number of polymers will help. There are so many different polymers that it can be quite difficult to sort and that is quite costly. If you are using fewer polymers—using fewer materials in general would be best—that are more easily sorted, it is more likely that you will be able to get the economics to stack up in this country. At the moment, it is quite often too difficult.

Peter Maddox: I agree. The market is challenging, but some of the policy measures that have been discussed will put more rent in the chain, so hopefully local authorities will be able to sell some of their recycling to the marketplace at good prices. Given that we are going to be asking retailers and producers to put recycled content back into their bottles, they are going to have to pay for it and that is going to draw it through.

Q55 **Julian Sturdy:** Will that deliver enough of a home-based market or are we still going to have to be exporting? We are struggling to do that anyway; let us be honest. You lose the environmental side of it if you are physically exporting stuff to be recycled.

Peter Maddox: That is a great question. We should not be exporting contaminated plastic waste or mixed plastic. That is unacceptable. That is exporting our dirt, as the Environment Secretary has said. If we make plastics into good-quality materials that meet a standard, yes, we could export them to good markets in Europe and the rest of the world. To turn that around, though, UK plc has been dependent on China. It is not very resilient. It makes a lot of sense for the UK to have diversified, open markets, and having a home market is part of that story. I see no reason that it cannot be done.

Q56 **Julian Sturdy:** I agree with what both of you have said, but I am still not convinced, from what I am hearing, that we can change it enough to deliver a significant home market that is going to deliver the recyclable quality that local authorities are going to need.

Peter Maddox: We have a very thriving paper recycling and reprocessing industry. We have a thriving aluminium recycling industry and we have a thriving glass recycling industry, so I do not see any reason that we cannot. We need to get the supply and demand, and we need to get the investment right. That is something that we want to do.

Q57 **Chair:** We probably have not invested enough. It has probably been cheaper to export the plastics, I suspect, than recycle them here.

Peter Maddox: Indeed, and that is what has happened. Some significant investment was made, probably about 10 years ago, to try to develop closed-loop recycling capacity. One of the challenges is that they just could not get their hands on the material, even though they had world-leading technology. It was going abroad; it was too easy to go abroad.



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That has come up in all the debates in the last year about the export market and the lack of enforcement. We have seen the consequences of that. We have lost the China market.

I want to go back to the point about the economics. We talked about Wales and the investment that Wales has made. They have a recycling rate of about 64% or 65%. Yes, they have invested a lot of money but, if you look at the costs of running the recycling in the 22 Welsh local authorities, they are now coming down. The reason the costs are coming down is that they are getting more astute, they are getting better, and they are starting to sell the materials at a higher price to the reprocessors. They have thought everything out, so in the way it works, it is a very clear graph.

There has been a lot of big, upfront investment by the Welsh Government in vehicles and everything like that, but the whole driver for this is that, if they get that investment right, the cost to local authorities will go down and they will get quality materials. I know for a fact that most of the materials collected from Welsh households are going into the UK reprocessing industry.

Juliet Phillips: I do not have the answers on the economics side, but I have a couple of observations. Particularly when we are talking about exporting plastics, the low labour costs and energy costs associated with shipping overseas have been a major driver. It is really important, perhaps through the extended producer responsibility reform, to create a socially and environmentally level playing field, to make sure it is getting recycled to the same standard, not just environmentally but socially. We have seen instances of child labour, really poor health and social costs overseas, and that is totally unacceptable.

Another point was on the potential economic savings from reducing and reusing because, if there is not so much of the hard-to-recycle plastic, particularly, going into the waste stream in the first place, that could be a potential saving for local authorities.

Q58 **Julian Sturdy:** Is there an element there where better labelling and public awareness come in, so people know which is the easy-to-recycle plastic and which is the hard-to-recycle plastic?

Juliet Phillips: That is a part of it, and also more education around where reuse and reusable options are available. There is part of the recent EU directive, which I do not have to hand, but I could send over after the meeting, that includes more information on how people could communicate on reusable availability at a local level.

Q59 **Chair:** I will start off with compostable plastics. I have this plastic cup. It says "compost me". If I take this home and put it in my compost heap in my garden, it will take many, many years, if it ever decomposes. How much are people aware generally that, if you have compostable plastic, it has to be almost industrially composted? Are we lulling everybody into a



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false sense of security by having so-called compostable plastics? Some of the scientists say they never truly break down; they break into smaller molecules but they never completely break down. I do not know if anybody wants to attempt that one, Peter.

Peter Maddox: I do, but—

Sarah Greenwood: Go on; I will take this one. Is that all right? There are two main kinds of biodegradable plastics.

Chair: What is this one?

Sarah Greenwood: This is compostable. It does not say whether is home compostable or industrially compostable on it, but I know Vegware and I know this is industrially compostable.

Q60 **Chair:** I am pretty sure that, if I take that home and put it in my compost heap, it will take many, many years before it decomposes. I cannot swear to that, but I would be pretty sure.

Sarah Greenwood: Yes, that is right. It may go with time and if you get the temperatures hot enough, if you can the temperature of your compost heap to about 60 degrees Celsius.

Q61 **Chair:** It is the heat that will decompose it, is it?

Sarah Greenwood: Yes, and the specific conditions of the industrial composting process. There is a European standard for that. I have to get the numbers the right way round. It is EN 13432. There is a home composting standard. There is home-compostable film available, and rigid plastics as well. The other kind, which you also mentioned, is what we call oxo-degradable. This is made from PLA, which is polylactic acid.² It is probably made from corn starch, so it is plant-based. Compostable plastics do not have to be plant-based. They can be oil-based, although they mainly are plant-based.

Q62 **Chair:** Am I right in saying, once it becomes a plastic, in a way, it is slightly irrelevant as to what it was made from?

Sarah Greenwood: No. This is compostable. There are four subsets of materials. You have oil-based and compostable, which you do not have much of. You have plant-based and compostable, which is what most compostable packaging is. Then you have oil-based and not compostable, which is just standard plastic. Then you have plant-based and not compostable, which is what we call drop in plastics. I have a sample at home of HDPE that has been made. HDPE is what you would make milk bottles out of. I have a sample that has been made from sugar cane. The monomers from that have come from sugar cane rather than from oil. About half of the bioplastics available in the market are that drop-in kind of plastic.

² Note from witness: This statement refers to the compostable cup handled in the evidence session. See [recording](#) at 16:26:26.



Q63 **Chair:** And they are not compostable.

Sarah Greenwood: They are not compostable. You would just put them in the recycling like you would with everything else. You have four subsets of materials there. You mentioned the degradable ones, which are oil-based plastics, or we call them oxo-degradables, and they have an additive put into them. Over time, that additive chemically attacks the polymer and fragments it into smaller pieces. The reason the signatories of the New Plastics Economy have decided not to use those for now is that there is a fear that they just turn into microplastics and they stay there as microplastics. The makers of the additive will say that, once it is broken down into smaller pieces, it does biodegrade at that point, but we are lacking quite a lot of information on that at the moment.

Q64 **Chair:** You put this in and you have to heat it up in order for it to decompose. How much energy is needed to decompose? This is what I am trying to get to: is the composting of that energy efficient and environmentally efficient, or is it not? This is where we have to be careful that we do not tick boxes for the sake of ticking boxes. This is what I want to drill down on.

Sarah Greenwood: That is a really good question. I will just have to refer to my notes, which I cannot find.

Chair: Do not worry. You can give us that.

Sarah Greenwood: Composting is lower down on the European waste hierarchy than recycling. You would prefer to recycle. I personally do not like composting because there is a perception with compostable packaging that it turns into compost. It does not. It is basically carbohydrate.

Q65 **Chair:** It turns back into starch then, does it?

Sarah Greenwood: It turns into carbon dioxide, water or methane. It just turns into gas. There is a tiny amount of biomass left behind. It just does not turn into compost. Effectively, it is a very, very slow version of burning it. It just dissolves away into nothing. In terms of lifecycle analysis, yes, we need to be—

Q66 **Chair:** Could you put that into a biodigester and then take the methane gas off it? I am sorry to get so technical, but it is something that interests me with all these things. On the face of it, they appear marvellous but, when we drill down into it, they are not. It would be much better to not use them, have them be reusable or even have normal plastic, in some ways.

Sarah Greenwood: Providing it gets through the sorting process—because plastics are taken out of the waste stream before food is biodigested—so if you found a way of identifying it and allowing it through the process, yes, you could capture the methane from it. You would be better off recycling it first, if you could recycle it.



Q67 **Chair:** Did you say it breaks down into methane and carbon dioxide?

Sarah Greenwood: It is water and either carbon dioxide or methane, depending on the process.

Q68 **Chair:** The water is probably reasonably easy to deal with, but everything else is not quite so easy to deal with.

Juliet Phillips: We would deeply caution against a wholesale shift into what we call non-conventional plastics, so all the different types that you went through earlier. There are a number of reasons that we think these should be avoided, apart from for well-suited and well-adapted cases.

As you mentioned earlier, they persist in the natural environment because the conditions for biodegrading, particularly if it is industrial, are very rarely met. If a biodegradable cup gets into the sea, it could pose just as much of a problem to marine life as a conventional plastic cup. Indeed, there are no standards for marine biodegradability or testing for eco-toxicity, so it could be a major problem. As we were talking earlier about unintended consequences, that could be a really key area to watch out for.

There is also a risk around complicating recycling and a lack of infrastructure. I was reading that just 2% PLA, which is what this is made of, contamination in a PET recycling stream can cause massive problems and make the whole thing not work. You just need a bit of customer misunderstanding for this to cause some serious problems for the recycling value if it ends up in the wrong place. There is also a lack of widespread knowledge and facilities. Not all local authorities have the facilities to deal with these, so an overnight shift to these could cause some real problems for local authorities. With bioplastics in particular, there is land use demand, so a lot of them come from starch and other things where there might be competition with agriculture. Again, we would caution against that.

Libby Peake: I have a few points. We are quite concerned that there is not a lot of joined-up thinking among Government Departments on this issue. Defra has been fairly cautious, but BEIS in its bio-economy strategy heavily promoted bio-based and biodegradable plastics as a solution to marine plastic pollution. That was reiterating what was said in the Government Office for Science report into the future of the oceans, which was an incredibly concerning thing to see, because the scientific evidence suggests that the conditions you have in the ocean are not the conditions you need for things to biodegrade. There is also evidence from the UN showing that, if you give people something that is labelled as biodegradable, they are more likely to litter it, so it could make pollution at land and sea even worse.

To your question about whether this would digest in an anaerobic digester, it would probably survive the process as plastic shreds, just because that process is quite quick, so even when you are putting



biodegradable bags in the anaerobic digestion process, which we think are absolutely needed to facilitate food waste collections, they survive as plastic shreds when they come out. If you want to make sure it disappears, you have to add an additional composting step on to the end, which would be better for AD anyway, because the digestate is not as good for soil as compost and it causes air pollution problems when you are spreading it, so you want to add that step on in any case. You are far from alone in being confused by this.

The final point I would make is that the testing conditions used for these things do not tend to replicate real life. If you have something that is described as home compostable, unless you are a very good composter, you will not get it to degrade in the amount of time that it says. The same goes for the conditions when people are looking for biodegradable things for the ocean. Those do not tend to replicate real-life conditions. That is something to bear in mind when considering the merits of them.

Q69 **Chair:** Without wishing to be sued by this particular company, and I am in Parliament so I will not be, these claims—"go green", "compost me", "eco-friendly", Vegware, "hate waste"—are extraordinary, are they not?

Sarah Greenwood: Vegware is a particularly good company, though. They do actually put their money where their mouth is. I helped run a conference last year and they very kindly gave us some packaging.

Q70 **Chair:** I do not want to knock them, but I want to say that those are quite outrageous claims, whether they are a good company or not. I would not want to have to stand up and defend that if anybody challenged it in a court of law, to be honest with you.

Sarah Greenwood: They offer a collection service. They will close the loop for you, essentially, so it works really well. We spoke earlier about music festivals or sporting events. There is a football team down south that uses compostable packaging at its stadium.

Q71 **Chair:** I imagine these are sold generally, are they not?

Juliet Phillips: I agree with what you are saying. Anecdotally, every weekend after there is a massive farmers' market where I live, there are tonnes of these eco-friendly cups just disposed of. There are concerns about labelling, which you were talking about.

Q72 **Chair:** This is the point I want to make. You are right, Sarah, when you say that, if they are collected centrally, they can be recycled, but there is a chance that they will get mixed. I suppose it just highlights for me the fact that so many claims are made that on the face of them sound absolutely fine. If you drill down into them, they are not what we think they are. We are going to have to be so careful on that, as we move into using less plastic and recycling more. Generally using less plastic is the solution in some ways, more than it is recycling. When we can recycle, let us make sure it is genuine recycling. It has been quite fascinating. I do not want to make it a witch hunt on that particular company, but it is



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rather tempting. I have been told by the clerk that I must stop this.

Peter Maddox: To add to the comments that have already been made, I agree with the point that we need to make sure we are joined up in the Government over this. We have a bio-economy strategy and we are doing lots of work on recycling and waste, so it is really important that we get joined up. I am concerned. In the UK Plastics Pact, we have been driving in the first year just to say, "Let us help our consumers here and get fewer plastics on the marketplace. Let us stop PVC and polystyrene. Let us get it simple". Then, suddenly, you have these new, innovative polymers coming on.

As you know, we try to encourage innovation, but one of the challenges in the whole bio and composting area is that, while there is a lot of focus on the technology and the marketing, as you have mentioned, there is not enough focus on the material flows and what happens when you finish it. It is the point you made, Caroline, about the residents in your constituency: what do they do at the end of life and then what happens in the sorting and reprocessing facilities?

I have to be honest. We have been open, we have been listening but we have been disappointed with the way the biodegradable and compostable plastics have been discussed across the sector. It is fair to say that there are some instances where these are particularly good, and you touched on it, where you have a closed system and you can control what goes in and out. The Olympics was great at that. Was it PLA that you had at the Olympics? It was quite a while ago now, but that worked really well. Generally, it is going to be a real challenge. I would encourage the industry to really think about end of life, about how it integrates with the existing system, because it could create some difficult consequences.

Chair: It is probably hypocritical for me to say as a politician, but we have to be careful that it is not just the feel-good factor, but that it is proper recycling or reuse, and is genuinely doing something good for the environment. That is going to be our challenge as we move into all these different materials and things. I thank you all very much for a very interesting afternoon.

As you can tell, in the Select Committee, we can drill down on all sorts of things. It is really good evidence for us, because the whole idea is to put a report together that will hopefully reduce plastics, look at recycling and come forward with some very practical recommendations. I thank you all very much for your attendance. We have gone into a fair bit of detail but, if there is anything you want to clarify, or anything else you want to add to your evidence that you would have liked to have said when you think about it, let us have it in writing, please. Thank you very much.