The Harm Society’s reliance on Plastic is causing. Are there Solutions to this Global Environmental Challenge?

Date: The Eve of World Water Day on Thursday 21st March 2019

Venue: Guildhall Members Club, 3rd Floor, Aldermanbury

 Speakers:
Professor Richard Thompson OBE, Professor of Marine Biology, Plymouth University

Dr Lynette Dollar, Principal Sustainability Consultant, Stantec

Introduction

Sheriff the Hon Liz Green opened the event by welcoming everyone present to the WET10 conference and highlighted that the City of London was a world leader in green finance. Simon Catford, Master of Water Conservators followed with a brief introduction highlighting the growing adverse impact of plastic waste on the environment. He thanked the City of London Corporation and Stantec for joint sponsorship of the event and then introduced Professor Richard Thompson OBE, to give the first presentation.
Richard Thompson explained his interest in plastic waste came from when he first worked as a marine biologist for the Marine Conservation Society and found tiny plastic fragments which weren’t being recorded with other litter and wanted to understand where they came from. This led to the first paper on micro-plastics in 2004. To explain the reason behind growing volumes of plastic litter in the oceans, he quoted from a book on plastics published in 1945 “the key benefit of plastics is their durability”. To demonstrate this he showed a picture of himself as child with a plastic toy and then produced the toy which was still in existence in perfect condition.

Professor Thompson explained that 70% of marine litter was plastic with a wide range of size of litter found on the beach of every shoreline. The US Coast Guard spend $1 billion dollars a year clearing beaches. The damage from plastic waste ranges from the entanglement of boats propellers to endangering wildlife. 92% of wildlife encounters plastics and 17% are endangered by it in some way. A third of the fish we eat contain plastic but levels are still low enough to be safe for human consumption.

To explain the scale of the plastic pollution issue he compared the 0.7 MT of biodegradable hydrocarbons released into the ocean during the Deep Horizon event with the 17 MT of plastic debris released into the oceans every year.

Tyre wear alone releases 20,000 tonnes of micro-plastics every year into the oceans. The threat from nano-plastics is that they can be easily ingested by a wide range of creatures.

So how do we continue to utilise the key benefits of plastics but reduce the harm they can cause? Professor Thompson explained that a key solution was based on the sensible use of plastics.
40% of plastic products are single use and it was difficult to change behaviours as we have been trained for 60 years in developing the throw away culture. The responsible use of plastic products was likely to lead to successful solutions rather than banning products. He said it was also sensible to look carefully at long term solutions rather than rapid reactions which often had unintended consequences. As an example he passed around a sample of a biodegradable plastic bag which had merely disintegrated into very small plastic fragments which presented a bigger pollution threat. Recycling and sensible use were the two key forces to reducing unnecessary plastic waste.

**Plastic: Advantages vs Disadvantages – Dr Lynette Dollar**

Dr Lynette Dollar initially pointed out that plastics were widely used in the water industry because they were stable, durable and inert, avoiding water quality issues that could occur with other materials. To assess the impact of plastics it is important to understand the source of the plastic, the pathway, and the final receptor.

She explained that the main types of plastic waste in water and waste systems were plastic litter and micro-plastics. An example of micro-plastics would be plastic fibres from washing clothes ending up in the storm water to a sewage treatment works. An example of plastic litter would be cotton buds – 100,000 cotton buds per year pass through screens at sewage treatment works. Although the levels of micro-plastic may be currently low, future treatment possibilities to remove it could include reverse osmosis.

In summary, Dr Dollar stressed that to reduce plastics in the water environment for the future it was important to look at the potential use and waste streams at the design stage of products.

**Questions**

*Question* – My Sunday Times comes wrapped in plastic. How do we change behaviours?

*Response* – Innovation rather than legislation is key. For years the industry has had its head in the sand.
**Question** – Those associated with the plastics industry now feel under threat. How do change this?
**Response** - The industry has responded too easily to the wants of the end user. Impending EU directives will increase supplier responsibility. We don’t currently have enough recycling capability. Also we are not costing in the impact on the environment. Some plastic bottles have a non-recyclable sleeve. Pigments in coloured bottles reduce the ability to recycle them.

**Question** – What is the impact of micro-plastics on human health?
**Response** – We don’t fully understand the future potential impact of micro-plastics on human health as concentrations are too low at the moment.

**Question** – What is the potential for sustainable plastic clothes?
**Response** – This requires cooperation between suppliers and environmental groups. Some clothes shed fibres more quickly than others. Also washing at lower temperatures can help to reduce the breakdown of materials.

**Question** – Water is precious, how do we encourage people to value it?
**Response** – Water is provided at too low a price. We need more education on the real value including water foot printing (the amount of water used in producing products).

**Question** – What are the barriers to recycling all plastics?
**Response** – Less than 10% of all plastics are recycled. In Tokyo all PET plastic is recycled. Currently we design plastic products for functionality not end of life. We need the same effort that went into reducing smoking and increasing the use of seat belts.

**Question** – What is the future for biodegradable plastics?
**Response** – Some items may be labelled as biodegradable but they essentially just break down into smaller fragments, for example Professor Thompson had handed around a tube containing a biodegradable plastic bag which had disintegrated into small fragments.

**Question** – What are the treatment possibilities to remove micro-plastics?
**Response** – Possibilities include measures to trap plastic particles. However, current levels are not a threat to human health.

**Question** – Could micro-plastic beads be eaten by helpful bugs?
**Response** – There are bacteria that could do this, however, we can’t just degrade our way out of the problem.
Conclusion of the Event

Emily Catford of Macquarie Group Limited
with the City of London’s ‘Plastic Free City’ certificate

At the conclusion of the event, an opportunity was taken to present Emily Catford from Macquarie Group Limited with a certificate, as the latest employer recruit to the City of London’s “Plastic Free City” campaign.

To close, the Master, Simon Catford thanked the event sponsors, City of London Corporation and Stantec, Andrew Williamson and RG Jones for audio/presentation equipment, The Cook and Butler for canapes and drinks, and The Guildhall for providing the accommodation.

Simon Catford then thanked the speakers who were applauded by all and invited everyone to join him for drinks and canapes in an adjacent room.

Rob Casey, Fleet Warden, Company of Water Conservators