



THE CITY ENVIRONMENT DEBATE “ACCELERATING THE TRANSITION TO A CIRCULAR ECONOMY” FOCUSING ON MATERIAL RESOURCES

This paper summaries a debate facilitated by the Company as part of their vision of promoting a diverse and sustainable environment, working with Arup, CIWM and Suez. It was held at Arup’s offices in London on 1st October 2024, as it was conducted under the Chatham House Rule, none of the remarks are attributed to any individual presenter. The opening statements, questions and observations have been grouped below.

Presenters:

Dr Adam Read (Chair)

Stuart Hayward-Higham (SUEZ)

Professor Mark Miodownik (UCL)

Rainer Zimman (ARUP)

Dr Margaret Bates (DEFRA)

Liam Hogg (NHS)

Wayne Hubbard (ReLondon)

Russell Macdonald (HPE)
(Hewlett Packard Enterprise)

The introduction and closing remarks Allan Barton (Worshipful Company of Water Conservators)

Key observations of the Organiser

Reasons for holding the debate

The debate was organised to identify possible ways of accelerating the transition to a Circular Economy. During the debate the following reasons for accelerating the transition were identified:

1. Currently progress to a Circular Economy is too slow;
2. Globally in the past three years we have gone backwards, down 2% to 7%;
3. The vast majority of our material resources are discarded as waste after use, in 2023 globally 2.1 billion tonnes of municipal waste were discarded;
4. The Global South nations are moving towards the consumption rates of the West, the resources of 3.6 planets will be needed if our whole eight billion population consumes at the average of the top 20 developed nations;
5. We are not realising the possible significant reduction in carbon dioxide from changing to a Circular Economy and
6. Our current economic model cannot be sustained without moving to a global Circular Economy.

Key recommendations to accelerate the transition to a Circular Economy

Establishing a Circular Economy can only be achieved with Government, Business, and society all working together. The following will accelerate the transition:

1. Creating a behavioural change programme to inform and raise awareness of the issue to mobilise society to take part in the Circular Economy;
2. Setting challenging targets in all areas, because challenge drives change;
3. Encouraging all nations to take part by introducing legislation and fiscal measures to force the transition to a Circular Economy. The UK should lead by example and introduce such legislation and fiscal measures to force the change;

Listen to a podcast recorded after the debate between Adam Read, Allan Barton and Tim Walker (President CIMW) PodBean “The Beyond Waste PODCAST’ 27 November 2024”



4. Creating urgency for both net-zero and the Circular Economy by applying a systems thinking approach;
5. Focusing on acceleration of all the approaches including restraint, renting/leasing, reuse, repair, dismantling and remanufacture;
6. Ensuring that business designs products in line with the Circular Economy;
7. Having business fundamentally examining and transform all their processes, work with all stakeholders and consider all aspects of the whole life cycle value chain of their products and services, and taking advantage of the Circular Economy to grow and secure their business in the long term;
8. Ensuring that Government grows the UK Circular Economy by providing long term certainty, a level playing field, encouragement of the research and development and assisting business transform itself; and
9. Sharing the UK experience with the developing global south nations so they do not repeat our mistakes.

The Debate

The need to move from linear to circular

A fundamental change is needed in our paradigm of linear to circular in all aspects of the product life cycle, to enable living on one world with one world's resources.

If the eight billion people currently in the world were to live as the average of the top 20 most developed and consuming nations, 3.6 times as much as the Earth can sustain would be needed. If the global population peaks at 12 billion, this will rise to 5.5 times. Obviously, this is impossible, so an urgent move to a Circular Economy is needed with regard to our material resources. Doing so is the only way we can sustain the current economic model.

Globally, municipal waste generation is forecast to rise from 2.1 billion tonnes in 2023 to 3.8 billion tonnes by 2050, driven by population growth and consumerism. The Global South is accelerating as countries move toward the western consumption rates.

We need to rethink how we do things. During COVID 19 pandemic 3.9 billion single-use disposable gloves were consumed every nine days. Although this is now back down to three billion a year, we must find a better solution.

Currently Londoners are responsible for an estimated 10.5 tonnes of consumption-based CO₂e emissions per person per year.

What is the goal

The goal must be to sustainably match the demand for resources to the supply. This requires a fundamental rethink of the way we design products and use resources.

All uses of resources need to be addressed. ReLondon is focusing on food, fashion, plastics, built environment and electricals.

To achieve a Circular Economy, the first focus needs to be more on prevention and restraint in the use of resources. Then we need to focus on re-use and repairing goods, then onto dismantling so resources can go back into manufacturing, then recycling, then reforming into raw materials and finally recovery any residual energy. This transition to Circular Economy is essential so that we remain competitive and ensure that our economy grows sustainably.

Society needs to perceive itself as a resource manager and custodian of material resources, not just consumers.



By achieving circularity of material resources, we will realise the additional benefit of significantly reducing the overall greenhouse gas emissions.

Setting challenging targets.

Setting challenging targets drives change, examples given in the debate where:

1. London currently generates 10.5 tonnes of CO₂e per capita annually of consumer-based emissions. A target has been set to reduce this by 60% by 2030 and by 95% in 2050, to play its part in holding to a 1.5°C target.
2. Likewise, in England, the NHS set a target to cut its material resource CO₂e emissions by half between 2021 and 2026. At the end of 2023, it was on track to achieve this goal. The aim is for a 97% CO₂e reduction by 2050 to attain the 1.5°C target. This has been achieved by working with its supply chain and fundamentally reviewing all their processes.
3. Working with its customers HPE remanufactures approximately 86% of the servers and 94% of all PCs returned to their remanufacturing facility.
4. Heinz set themselves a target of improving recycling of its sauce bottles. They now manufacture the lids and bottles in the same material.
5. Apple has designed robots to dismantle their iPhones. Their target is to be self-sufficient in raw materials by 2030.

We need challenging targets for all aspects of the Circular Economy.

Consumerism

“Some have an idea that the reason we in this country discard things so readily is because we have so much. The facts are exactly opposite - the reason we have so much is simply because we discard things so readily. We replace the old in return for something that will serve us better.” A. P. Sloan Jr. Head of General Motors, 1924. Citizens are called consumers in the business and political world. This is because consumption drives the economy, and we need economic growth to sustain our way of life. This also means that the production of waste drives the economy. Recognising people as consumers is wrong.

Mobilising society

There needs to be a behavioural change programme to explain clearly the facts to society and using examples like ‘one world living’ and how understanding your ‘personal carbon footprint’ could have an impact, like the ‘Blue Planet’ programme had on plastic waste. This is required so society at large can play its part, as well as lobbying Governments to facilitate the change to a Circular Economy. Society must be provided with context about the consequences of their actions along with outlining convenient alternatives and the purpose of considering these. Communicate in ways that people will understand. Language is important, what do we want to see as positive outcomes. Popular acceptance is essential.

Waste should disappear as we use resources

Waste is a negative word. It is not necessarily an appealing word. This is both a good and a bad thing when communicating messages. Are other words, such as ‘resources’, ‘by-products’ more positive in some circumstances; phrases like it’s never been a ‘waste’. Moving wording from waste to resource represents the journey and ambitions of the sector and the Circular Economy. There was also an opinion that the word ‘waste’ is fine, we can eradicate it by driving change and eradicating waste.

Listen to a podcast recorded after the debate between Adam Read, Allan Barton and Tim Walker (President CIMW) PodBean “The Beyond Waste PODCAST’ 27 November 2024”

Legislation

The Government must introduce legislation to force the transition to a Circular Economy. Also, we need all nations to take part by introducing legislation and fiscal measures to force the global transition to a Circular Economy. The UK should lead by example. Having effective legislation and effective enforcement is essential. There is currently a large amount of legislation impacting on the resources sector, all legislation should be joined up to achieve the overall goal of a Circular Economy.

Fiscal measures

There may be additional costs involved in transforming from a linear to a Circular Economy. Fiscal mechanisms can be used ensure that the least sustainable approaches cost more, to encourage better outcomes. Measures like the packaging Extended Producer Responsibility (pEPR) can be a key to transitioning to a Circular Economy. Fiscal measures are needed because it is not going to happen without these, the business world has not changed voluntarily. It requires us to apply the 'polluter pays' principle and so make businesses responsible for their packaging. Companies pay DEFRA under pEPR, making an immediate incentive for them to generate less packaging waste. The intention is to see less packaging, more recycling and generate at least £1 billion per year in funding to support local waste management capacity, especially in recycling.

In the UK, effective adoption of pEPR would generate 21,000 jobs and £10 billion in recycling capacity, driving innovation and better. more explicit and informative labelling regarding packaging recyclability.

Although good quality data is essential for the scheme and important, it is better to start and amend than wait forever to agree every detailed point.

Getting the Government on board

At the Labour Conference in September 2024, there was much talk about the Circular Economy, although little in the way of specifics. Encouragingly, a minister now has the Circular Economy in their brief and Defra sees its role as helping to drive the Circular Economy. Defra should also be thought of as an economic department not just an environment department.

One question debated was: Will the Government seriously move towards a Circular Economy, especially when the going gets tough? That depends, to some extent, on the state of the economy but losing the drive and commitment would not be a disaster. It is evident that the Government cannot do this alone, as they need to bring all parts of business on board. It is encouraging that Defra is facilitating road maps for each sector involved in the Circular Economy.

We need to create conditions for investment for industry. A long-term goal is needed - say 20 years - and stability over political cycles of these key long-term goals. This is especially true for investing in technology solutions.

There needs to be strong leadership from Government driving the Circular Economy which is key for achieving net-zero and both net-zero and the Circular Economy should be given the same priority.

There are lots of grand plans, yet realities differ. With targets being rolled out across the UK between 2024 and 2030, the Government must ensure that there is suitable coordination if they are going to make a coherent and meaningful impact.



More cross-Government departments need to be working collaboratively to really drive any change by policies (no industry works in siloes).

Need to design in circularity – future is design

Waste is a design flaw. Currently 80% of decisions happen in the design phase so it is essential designs are based on the Circular Economy.

The ideal manufacturing system would not produce waste in the manufacturing process and would generate goods which have an infinite life.

One difficulty is that we are still not sure about what the Circular Economy means and what questions we should be asking. Asking the right questions ought to make people think differently, as well as influencing Government and decision-making.

Net-zero and Circular Economy

London currently generates 10.5 tonnes of CO₂e per capita annually of consumer-based emissions. A view was expressed that we will not achieve net-zero without achieving the consumer-based emission reduction of the Circular Economy.

Currently approximately 40% of our personal carbon footprint is consumption.

Different approaches

The following different approaches were debated:

Restraint

We need to encourage restraint in our desire for goods and services and ask ourselves the questions “do we really need this?” and “how often are we going to upgrade?”

Renting/leasing

Where possible we should move to renting/leasing goods so that at the end of their usefulness, they can be reused by others or remanufactured.

Reuse

Should be encouraged, including facilitation of the logistics. A good example of reuse is wind turbine blades as highway reinforcement in the Netherlands.

Repair

Products should be designed so they can be repaired. We need to develop a repair and reuse paradigm, which will be better for nature, produce less waste, more social value, more convenient, give more freedom and fun and be at a lower cost. Repair shops on the high streets open lots of social value. A good example is shoe leather is easier to repair than many artificial materials. It is also a by-product from the food industry.

Recycling

Single-use products like paper and cardboard, some plastics, metal and glass etc must be recycled.

Dismantling and remanufacturing

Products need to be designed so they can be dismantled, and the resources reused.

Recovery

During the transition there is a need for waste to energy. It should be seen as a stepping stone till we have a fully developed Circular Economy with no waste.

Throughout the debate, it was made evident that the effective transposing of the ideas and intentions of the Circular Economy into practical outcomes is constantly evolving. A theoretical outline has been developed which now requires a practical framework for implementation.



Securing business for the future

Business needs to realise change is inevitable, even when this did not once appear to be the case. Think of the fate of coal in the UK. Netflix started as a DVD delivery service today it is a media streamer and the photographic film sector going digital. All business needs to challenge every element of their business models and involve the whole value chain in the process. Including all the elements of the products' life cycle. This needs to be applied to all things consumed by society, with the approach of saving the world, one solution at a time.

Business needs to reimagine its future to be circular. Business leaders need to examine their markets and realise that their long-term future depends on getting raw materials from the Circular Economy.

Being circular in a single business is difficult as it needs collaboration across many sectors. This includes working with customers, logistics and resource/waste management companies and Local Authorities, thus addressing the whole life cycle. Business also needs to re-examine the skills needed for the future. It will require a significant increase in so called 'Green Skills', the skills required for a Circular Economy the present workforce may be concerned about their future, giving them hope by repurposing their roles is non-negotiable. The only way to get their buy-in is by retraining and envisioning a future in the Circular Ecology.

Making e-waste circular

The UK is the second largest (per capita) E-waste generator in the world at 24.9 kg per person of E waste per year, behind Norway.

Certain wastes can be monetised, which incentivises people to participate in reuse. The Royal Mint uses a bioleaching process to extract gold from E-waste. This is a better alternative to sending the waste to smelters in Europe and much better than acid washing in developed countries.

A better solution is to design for the Circular Economy. A good example is HPE's service sector now has its own product reuse facilities. Its IT is now designed with reuse in mind, so that when servers are replaced or upgraded, the parts are designed to be re-integrated into the newer models.

Helping developing nations

Developing nations consumption and hence waste production are set to increase as the move towards the Western lifestyles. Globally 33% of waste is mismanaged - for example through uncontrolled landfill. Dumped waste is a disease vector, pollutes watercourses, is a cause of urban flooding and is a waste of resources.

In developing nations, we need to remember to value the informal sector, the waste pickers, and integrate them into the Circular Economy through formal collection systems allied with recycling and recovery. Implementing such functioning systems will be a challenge, especially where there is currently no funding for developing the effective collection and recycling systems. A formal Circular Economy here will be a larger economy than the extant informal one.

The developed nations should share their knowledge and experience to help developing nations choose the best solutions for their locality and not repeat the mistakes of the developed nations.

The Company would like to thank Arup, Suez and the CIWM for their assistance with organising this event and producing this report.

Listen to a podcast recorded after the debate between Adam Read, Allan Barton and Tim Walker (President CIMW) PodBean "The Beyond Waste PODCAST' 27 November 2024"