The Paris Agreement: How a 1.5 degrees world can only be circular

UNDP webinar, June 2019

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The world is only 9% circular.

VALUE CREATION of the linear economy.
The circular economy provides a solution.
Looking at global value chains: 62% of GHG emissions are released during extraction, processing and production.

Our carbon and material footprint are two side of the same coin.

21% of the 84 Gt of resources which we extract are the fossil fuels which contribute to climate change.

67% of global greenhouse gas emissions are related to material management.

20% to 30% of a nation’s carbon footprint typically lies in the embedded emissions of the products and materials which crosses its borders.

Sources:
Material Economics (2018), The Circular Economy a Powerful Force for Climate Mitigation.
Based on S. Paulik (2014), G.P. Peters (2008), UNEP IRP. This estimate varies between different sources. According to S. Paulik (2014) “emissions embodied in international trade change the footprint of many countries by 30% or more”. According to G.P. Peters (2008) “22% of global CO2 emissions are embodied in international trade”
We need to incentivise the mitigation potential of Scope 3 emissions.

EU territorial emissions are on track for a 20% reduction by 2020, but consumption-based emissions increased with 11%.

Sources: ClimateWorks Foundation, Europe’s Carbon Loophole.
Finding systematic mitigation options requires mapping the full metabolism of a jurisdiction, industry or industrial cluster.
The metabolism of Almaty shows that 40% of its carbon footprint are ‘embedded’ or upstream emissions.

After mapping out resource flows, and growth ambitions we identify with stakeholders where **material value is lost**, and assets are underused.

From there, we identify promising circular economy opportunities like closing the loop in agriculture to reduce emissions from fertiliser production and organic waste.

Sources: Shifting Paradigms (2018), Circular Economy opportunities in Almaty.
Or point at **proven technologies** which can help recycle challenging materials like smartcrusher which breaks concrete into its homogenous ingredients: sand, gravel, hydrated and unhydrated cement.

Sources:
- NRC (2018), Dit is de nieuwe betoneter, de 'heilige graal' in de bouw.
- Shifting Paradigms (2016), End-of-life recovery altering the future of cement with Smartcrusher.
Solutions do not have to be high-tech. Some rely on creativity, entrepreneurship and cooperation.

Sources: VK (2019), Ekoproject, Eto Dvor Almaty
The **promising circular economy opportunities** we bring together in a circular vision for a sector, company or urban district.

Whereby artist impressions help make it tangible, in terms of environmental, social and economic impact or just quality of life in the city.

Source: Shifting Paradigms (2018), Circular Economy opportunities in Almaty.
The circular economy creates new opportunities for the design of the Paris Agreement and for countries to increase mitigation ambition.

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<th>From</th>
<th>To</th>
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<tbody>
<tr>
<td>Focus on energy efficiency, renewable and deforestation</td>
<td>Include options like substituting carbon-intensive materials, optimising resource and asset use</td>
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<tr>
<td>Efficient production of products</td>
<td>Optimised use of products</td>
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<td>Focus on a company, city or country (scope 1 and 2 emissions)</td>
<td>Focus on value chains (scope 1, 2 and 3 emissions)</td>
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<td>Territorial IPCC carbon accounting to determine our global carbon footprint</td>
<td>Consumption-based accounting and metabolic approaches to identify mitigation opportunities</td>
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<td>Article 6 inspired by CDM and offsetting</td>
<td>Article 6 to facilitate international cooperation and develop low-carbon value chains</td>
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Blog 3/4: Five opportunities for the circular economy to strengthen the Paris Agreement

Stay tuned:
www.shiftingparadigms.nl

www.circularity-gap.world