


***DIGITALISATION AND CIRCULAR ECONOMY: forestry and
forestry based industry implications***

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**FROM  LINEAR TO CIRCULAR ECONOMY:
THE ROLE OF FORESTS
(survey of WoodEMA associated
publications)**

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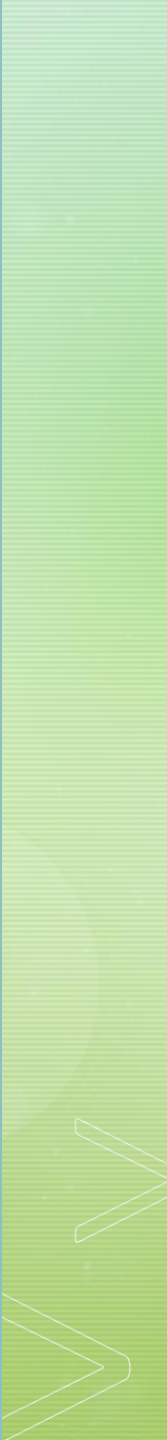


The goal

- To identify the contribution of the WoodEMA professional society in contemporary academic rethinking of the progress within the limits of the planet.



The goal

- And in this respect to contribute to a better understanding of the concept of circular economy, assuming general theoretical and methodological issues and focusing on the role of forests in transition from linear to circular economy.
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Topics

1. UNDERSTANDING THE CONCEPT OF TRANSITION TO CIRCULAR ECONOMY
 - Theoretical background
 - Policy actions
2. WOODEMA DISCUSSIONS
 - Topics
 - Problems /challenges and solutions / measures identified
3. CONCLUSIONS

Common understanding the concept of transition to circular economy

starting point: assumption from G-7 and G-20

This concept aims to redefine growth, focusing on society – wide benefits.

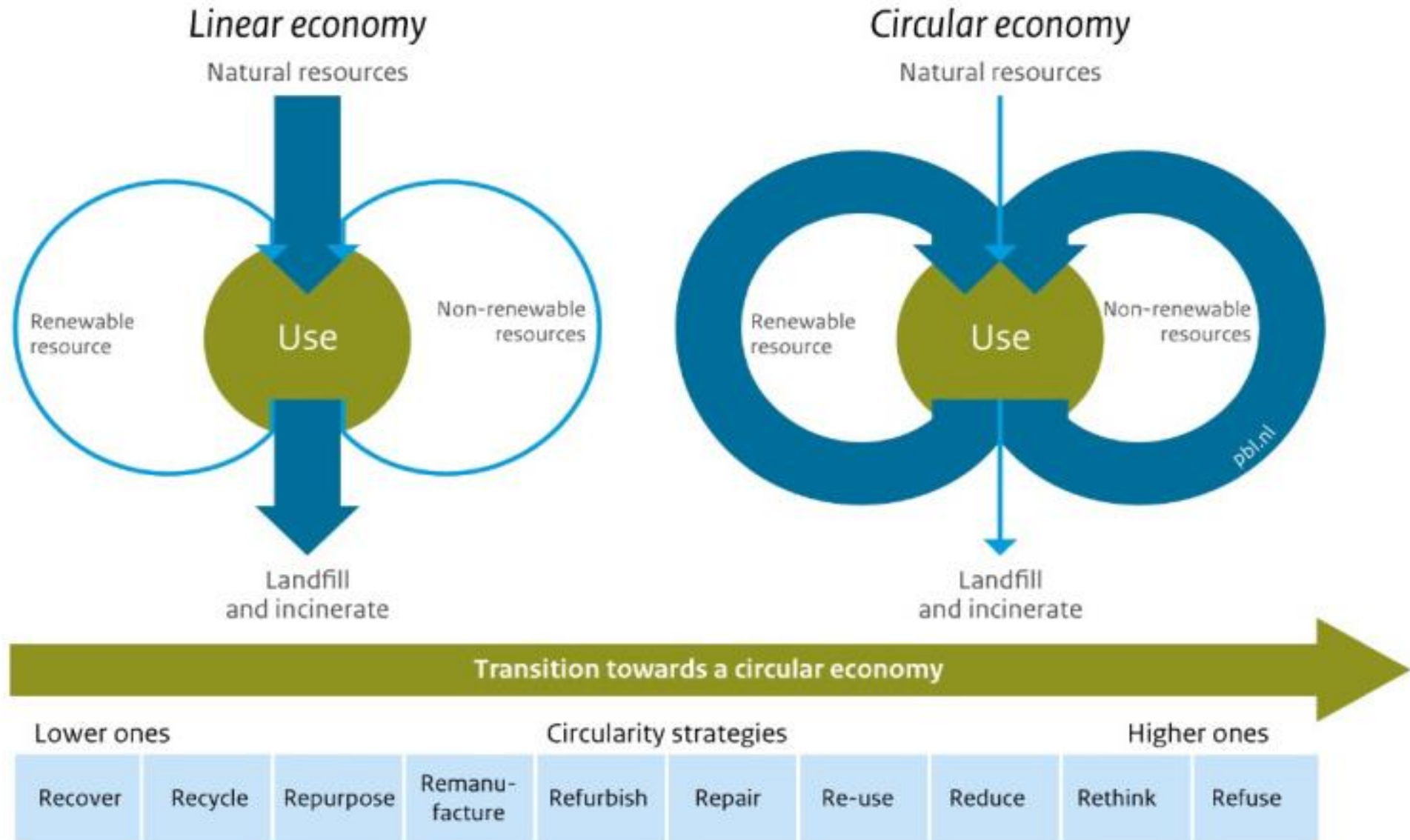
It transforms all the elements of the take-make-waste system how to manage resources, how to make and use products, and what is done with the materials.

The concept of transition to circular economy

- It explores how through a change in perspective to re-design the way our economy works.
- It recognises the importance of the economy to work effectively at all scales – for large and for small businesses, for organizations and individuals, globally and locally.

Figure 1

From a linear to a circular economy



How to identify a transition to circular economy

- Measurement

OECD and G-7 generally use two indicators:

- resource productivity and
- resource efficiency.

Indicators for circular economy

Resource productivity is measured as GDP divided by domestic material consumption as an indicator for analysing resource use.

Resource efficiency means using the Earth's limited resources in a sustainable manner while minimising impacts on the environment.

Policy actions for circular economy- EC

- In 2015 - action plan to accelerate Europe's transition to a circular economy, strengthen global competitiveness, promote sustainable economic growth and create new jobs.
- Contains 54 measures to "close the loop" of the life cycle of products - from production and consumption to waste management and the market for secondary raw materials.
- Identified five priority sectors to accelerate the transition along the value chain (plastics, food waste, critical raw materials, construction and demolition, biomass and bio-based materials).
- . Today EU institutions have a clear resource efficiency agenda; Roadmap to a resource efficient Europe; The Circular Economy package; Amendments to renewable energy policy that seek to address resource issues.

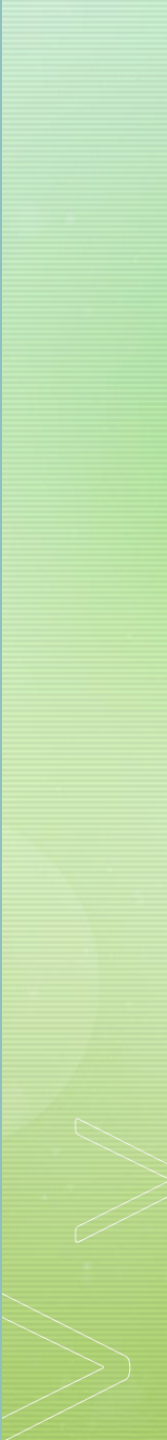
Policy actions – G – 7
on focus during the 2019 Annual Meeting in Davos.

Four key priorities emerging for the year ahead:

- a) Leadership is critical;
- b) Leverage the potential of the Fourth Industrial Revolution;
- c) Circular material value chains;
- d) Collaboration is key.



WoodEMA discussions

- Starting point of WoodEMA society understanding is that the circular economy means an economy where raw materials and their value are employed as efficiently and wisely as possible.
 - Or in other words, the main research question is how to create more income with fewer resources and in the most environmentally friendly way.
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Topics of transition to circular economy in WoodEma discussions

- 2009 -focused on competitiveness of wood processing and furniture manufacturing in linear economy, however, some articles cover topics and practical implication related to circular economy such as value chain principles, supply chain optimisation and information technologies, end-user awareness of environmentally appropriate wood products.
- 2010 - 2011 also cover some practices indirectly related to circular economy – analyses of wood removals, issues affecting timber products markets including technical innovations and environmental considerations.

Topics of transition to circular economy in WoodEma discussions

- 2012 - application of open innovations, innovations in small and medium sized enterprises, supply chain management, as well as the public policy suggesting better cooperation between universities and enterprises with emphasis on knowledge transfer and commercialisation.
- 2013 - the bamboo and pellet are described as effective ways for energy production and for other ecological materials. The biomass and wood are seen as opportunities for rural economic development.

Topics of transition to circular economy in WoodEma discussions

- In 2014 - the sustainability of forest economy and the tools for its management.
- 2015 - practical trends in respect to increase of the energy effective uses, new techniques in the construction, the application of wood pellet.
- - the role of wood clusters in wood and biomass promotional for stimulating innovations in the sector

Topics of transition to circular economy in WoodEma discussions

- 2016 - concept of cascaded use of wood and the intermunicipal and intersectoral cooperation. It is a very important elements of the alternative green development opportunity for the countries
- 2017- The topics that concern shift to circular economy are focused on public policy issues availability of beech raw wood and its usage for more valuable processing process; wood biomass contribution to renewable energy production

Topics of transition to circular economy in WoodEma discussions

- .2017 - also covered broad policy topics such as green growth and sustainable development, industry 4.0 concept, competitiveness and productivity corresponding to female employment, green properties of paper products and end-user awareness.
- In 2018 a lot of papers deal with producing wooden products, i.e. new packaging materials, building materials, fertilization, clothes hangers, as well as interesting public policy issues that have to be understood and integrated in the policy of transition to circular economy.

Identified challenges in the process of transition to circular economy - WoodEMA

- Multifunctional application of wood and the necessity to balance its utilization
- Growing energy consumption in parallel to the increase of CO2 emissions
- Sustainable production and consumption

Identified challenges in the process of transition to circular economy - WoodEMA

- Policy, encouraging sustainable development and innovations
- Innovation for higher efficiency
- Better usage of natural and human capital

Solutions/good practices, suggested by WoodEMA

- creating an enabling environment for investments;
- put in place public policies which enhance markets for legal and sustainable wood;
- increase innovation and improve resource efficiency along the supply chain;
- increased awareness and marketing for sustainable wood;
- investment in science, research and technological innovation

▶ In conclusion, moving towards a more circular economy means:

- less natural resources use,
- reduce pollution,
- tackle climate change,
- enhance consumer satisfaction, while also improving the bottom line.

▶ In conclusion, moving towards a more circular economy means:

- Taking into account the rational path not always the path of least resistance
- shifting the system will take leadership, collaboration, innovation and commitment to break the status quo.
- the forest and forest based industries are crucial for the transition to an innovative circular economy.

The role of forest in moving towards a more circular economy

- the forest and the forest based industry have an unique role as they rely on natural resources
- that is why the problems be more resource efficient in the way use and re-use resources is crucial not only for the sector, but for society future also
- among the important problems are the businesses to become more economic and more sustainable in the long term by: reducing external risks linked to oil and commodity prices; reducing the pressure on (natural) resources; opening up new revenue streams; and fostering innovation and collaboration between sectors and industry

Characteristics of WoodEMA contribution to moving to a more circular economy

- Practical issues on integration of the circular economic in the *production processes with high benefit*.
- *Microeconomic, mainly on firm level*, problems and possible solutions are dominating among practically orientated studies.
- A wide range of interesting *good practices* for efficiency increase as a result of circulation of raw materials.
- Since 2017 the focus put on the *policy issues* and the importance of renewable energy, construction and paper industry development in a circular way.

▶ What is the future contribution of WoodEMA to understanding transition towards a more circular economy?

- Let's listen the next presentations and read the proceedings of our conference



Thank you for your attention!

- Rossitsa Chobanova