# T09P05 / Barriers and Enablers of a Transformation to a Circular Economy

**Topic :** T09 / INTEREST GROUPS, BUSINESS, NETWORKS AND GOVERNANCE

**Chair :** Sina Leipold (Helmholtz Centre for Environmental Research - UFZ)

**Second Chair :** Fred Gale (University of Tasmania)

## GENERAL OBJECTIVES, RESEARCH QUESTIONS AND SCIENTIFIC RELEVANCE

There is a pressing need to move to more sustainable production and consumption systems (Meadows et al., 2004; Jackson 2006; WBCSD, 2010; Markard et al., 2012; Dietz & O'Neill 2013). To address this need, two of the world's economic and political powers, China and the EU, have developed political strategies to introduce the 'Circular Economy' (European Commission 2015; Circular Economy Promotion Law of the People's Republic of China 2008). These strategies describe the circular economy as a new paradigm that implies a complete 'transformation' of the economy and, subsequently, the society in these regions. The realization of this transformation will have large impacts on the global economy, and, thus, on how world politics is to be governed, with the recent Chinese waste import ban being a first indication of such impacts (Reuters 2017). Despite its global political relevance, an exponentially growing literature is focusing mostly on the technical and business aspects of the circular economy (Ghisellini 2016). While interesting business and technical answers are provided to the major question posed—what are the barriers and enablers to this transformation?—the political, institutional, and social barriers and enablers of such transformations have so far received much less attention.

We believe that by shedding light on the political and governance struggles over this transformation paradigm and the resulting policy-making, much can be learned regarding its potential global effects. On that basis, this panel aims to initiate a structured discussion of this new economic model from social, political, legal and governance perspectives and identify commonalities and differences across cases to generate joint lessons learned. Specific aspects that will be discussed include:

- barriers and enablers identified by business and civil society stakeholders, scholars and policy makers;
- socio-economic dynamics resulting from circular economy strategies;
- regulatory and governance challenges and trade-offs emerging from subsequent changes in supply chains and production and consumption processes;
- different conceptualizations of the circular economy;
- policy instruments for a circular economy.

## CALL FOR PAPERS

The goal of this panel is to bring together researchers from diverse disciplines and geographic locations with a common interest in exploring the idea of the circular economy. In order to facilitate this exchange, this panel asks for empirical studies as well as theoretical contributions in relation to the circular economy worldwide. Disciplinary as well as interdisciplinary work is welcome. Possible research questions include, for instance:

- What barriers and enablers do business and civil society stakeholders, scholars and policy makers discuss when realizing novel business models for a Circular Economy?
- Which new socio-economic dynamics, regulatory challenges and regulatory trade-offs emerge from subsequent changes in supply chains and production and consumption processes?
- How do different countries or institutions conceptualize the circular economy?
- What policy instruments and governance arrangements are suggested for transforming towards a circular economy?
- How is the circular economy discussed/understood differently across municipalities/states /regions and with what effects for their local/national/global regulation?
- What role do businesses play in circular economy?

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## Session 1The EU Policies of the Circular Economy

Wednesday, June 26th 16:30 to 18:30 (MB 2.445)

### A functions approach to analyze CE systemic performance in EU28 countries

Carolina Resende Haddad (Chalmers University of Technology)

Despite the importance of tools to measure and evaluate the transitions towards CE (Elia et al., 2017), there is a lack of published studies of the design of circular economy (CE) indicators, which can provide feedback on the appropriability of the policies adopted so far (Ghisellini et al.,2016). The aim of this paper is to contribute to filling this gap by developing a circular economic index, combining insights from both sustainability transitions and innovation literature. As argued by Jesus and Mendonca (2018), this combination “may provide an appropriate perspective for understanding the transition to a circular economy” (CE) (pp. 75), since transitions not only encompass new technologies, but also changes in markets, user practices, institutions, policies and cultural discourses (Geels, Hekket & Jacobsson, 2008), and can be “understood as shifts or ‘system innovations’ between distinctive socio-technical configurations” (Coenen, Benneworth & Truffer, 2012, p. 968). Specifically, we build an index resulting from an aggregation of seven composite indicators, which are based on the functions of innovation system (following Bergek et al. (2008): knowledge development and diffusion, influence on the direction of search, entrepreneurial experimentation, market formation, legitimation, resource mobilization and development of positive externalities). This tool has the explanatory capacity to explain the performance of the system and hence socio-technical transitions (Markard et al., 2015). Then, we show its applicability by analyzing the circular economic performance of the EU28 countries in order to compare and identify countries level of development, diffusion, and utilization of circularity and hence the processes underlying a transition from a linear to a circular model of production and consumption (Jackson et al., 2014). The analysis shows that the countries can be divided into four groups, based on the index quartiles (i.e. we divide the index into three points, a lower quartile (Q1), median (Q2) and upper quartile (Q3), forming four groups). From our analysis, we find that Austria, Denmark, Finland, Luxemburg, the Netherlands, Slovenia, and Sweden have higher levels of circularity between EU member countries (first group). The second group is composed by Belgium, Cyprus, France, Germany, Ireland, Spain, and the United Kingdom, who show a middle level of CE performance. Slovakia, Portugal, Latvia, Italy, Greece, Czech Republic, and Croatia show a middle-low level of CE performance (third group). Finally, countries such as Romania, Malta, Poland, Lithuania, Hungary, Estonia, and Bulgaria seem to be lagging behind in the transition to a circular economy (fourth group). By disaggregating the index into composite indicators, we can analyze how each country is performing in each of the seven functions and inform where future policy interventions should focus on in order to improve CE performance. For instance, at the country level, Romania shows weaker levels of knowledge development and diffusion and legitimation and hence should focus on policies that aim at strengthening these two functions.

### Transforming to a Circular Economy in Europe – Positive interventions and adverse effects

Sina Leipold (Helmholtz Centre for Environmental Research - UFZ)

Tim Griebel (University of Erlangen)

Understanding how people imagine sustainability transformations is crucial for assessing their implications for political and practical action. We study the Circular Economy (CE) as a novel EU policy discourse, which is connected to considerable hopes of a transformation to sustainable production and consumption systems. Up to now, scholarly analyses of the CE as policy paradigm have focused on (potential) technological and economic applications. Political expectations and logics behind the CE as novel EU policy paradigm remain underexplored.

To fill this gap, we analyze the EU policy discourse on the circular economy as a novel transformation

pathway towards sustainable production and consumption systems. To do so, the paper draws upon 28 in-depth interviews with key political, civil society, and business representatives, 84 policy documents, and 320 press articles from a prominent EU press outlet (euractiv.com). We apply corpus linguistic methods (e.g. keyword and collocation analyses) to reconstruct the semantic field around circular economy in different media and an interpretive discourse analysis to demonstrate emerging narratives and agency constellations.

Our results demonstrate that although the imagined future state of a CE and its specific features vary considerably, stakeholder and press perceptions show a certain belief in the steering power of certain “intervention” or “leverage” points (e.g. entrepreneurs, innovators, technology diffusion). At the same time, the expert interviews highlight also considerable adverse “leverage” points of the circular economy concept while media debates largely ignore potentially adverse effects.

Implications for our understanding of barriers and enablers of a circular economy arise from insights into (a) the large influence of the belief in the steering power of certain “intervention” or “leverage” points, and (b) the identification of contentious and adverse effects of transformation. These results may not only serve the scholarly debate on EU concepts for a big transformation but also future-oriented stakeholder debates on a circular economy in the EU.

### Breaking the linear lock-in: policy options for a circular economy

Kris Hartley (Arizona State University)

In its focus on closing systems of production to improve sustainability, the concept of the circular economy has emerged as an alternative to the make-consume-dispose model of production, known as the linear economy. While the concept of circular economy has generated interest among businesses and policymakers, there is little scholarly understanding about the potential for new public policies to stimulate the transition to a circular economy. This study utilizes data from over 40 expert interviews and over 200 survey respondents to identify policy measures that businesses, governments, and academics advocate for escaping the linear economy lock-in and facilitating a transition towards a circular economy. While most previous literature on this topic has focused on analyzing existing policies, this study’s contribution is that it introduces findings about policy preferences among stakeholders directly involved in a potential circular economy transition. Findings are analyzed along the dimensions of culture, regulation, markets, and technology, in order to capture the complex interplay of forces perpetuating liner lock-in and hindering the emergence of a circular economy. The study merges survey and interview data with existing theories, including carbon lock-in and policy analysis, to push the literature towards a more holistic and researchable understanding of the motivations and understandings of stakeholders. As such, the study aims for both an empirical and theoretical contribution in a rapidly emerging field of study and practice.

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## Session 2Circular Economy as a Concept from Global to Local

Thursday, June 27th 08:00 to 10:00 (MB 2.445)

### The Global Politics of Circular Economy - An analysis of China-EU policy discourses

Anran Luo (University of Freiburg)

Sina Leipold (Helmholtz Centre for Environmental Research - UFZ)

China and the European Union (EU) have been actively promoting circular economy (CE) policies to address sustainability issues in production and consumption systems. Both regions have introduced wide-reaching CE policy programs at the national and supranational level, respectively. The European Commission and the Chinese National Development and Reform Committee also recently signed a Memorandum of Understanding on Circular Economy. This co-operation of the world's two largest economies is expected to have great impacts for the global economy and the governance of world politics.

While some studies compare Chinese and EU or EU countries' CE policies and experiences, the evolution of CE policy in global politics has received little attention. To fill this research gap, our study applies discourse analysis to investigate how CE emerged and evolved as a policy paradigm in EU-China relations and how similarities and differences of CE conceptualization and implementation in the two regions affect cross-jurisdictional and global regulations. The analysis is based on approximately 50 relevant documents, 30 interviews with core CE policy stakeholders working across the EU and China, as well as participatory observation in Brussels and Beijing in the first half of 2019.

Our results will map the distinct CE visions – including political, institutional and social dimensions – policy stakeholders hope to realize through their international cooperation. We will further identify the socio-economic barriers and enablers stakeholders from each region consider crucial in a transformation to a CE. Finally, our analysis will carve out the political and governance struggles over CE as both a transformative policy paradigm and as a regulatory, geopolitical and socio-economic project. Our analysis will clarify and critically reflect on the evolution and power implications of CE as a new policy regime shaping global politics and economics and the potential international co-operations.

### The Circular Economy in Australia

Fred Gale (University of Tasmania)

A range of terms and practices has emerged since the 1987 World Commission on Environment Report that aim to guide governments, business and civil society actors towards the new overarching societal objective of sustainable development/sustainability. These include environmental policy integration, green procurement and collaborative governance to ensure better integration at the policy level of sustainability's economic, social and environmental imperatives; corporate social responsibility, triple bottom line accounting and environmental reporting to enable business to better consider the social and environmental consequences of the drive to earn profits; and 'multistakeholder governance' and 'sustainability standards' to create new roles for non-governmental organisations in cooperating with business and governments.

A relatively new term is now being added to these—the 'circular economy'—and the danger is that it will do little to bridge the 'big disconnect' between microlevel organisational claims to be practising sustainability and the macro-level reality where data indicates growing economic volatility, social inequality and environmental degradation. It is thus important to interrogate the new concept of the 'circular economy' both theoretically and practically to work out what its core and contested meanings might be, how it might different from 'green growth', the 'green economy' and 'degrowth', how it is being deployed in practice, and how it can be protected from conceptual overstretching and dilution.

In this paper, I review how the concept is being deployed in Australia by governments, business and civil

society actors by reviewing the academic literature on the topic and then undertaking a preliminary analysis of selected government, business and civil society publications to assess commonalities and differences in usages and meanings.

### Enabling the Circular Economy through Legal Instruments: Lessons from Northwestern Europe

Katrien Steenmans (Coventry University)

The circular economy is a trillion US dollar policy agenda and innovation opportunity that has the potential to address a myriad of global concerns – such as increasingly volatile resource prices, reduced resource availability, wasted resources – while concomitantly creating jobs, promoting social entrepreneurship, and facilitating economic development. The rule of law plays a critical role in supporting or inhibiting its realisation. While there are in fact several high profile international examples of laws and policies supporting circular economy policies, such as China's Circular Economy Promotion Law 2008 and the European Union's 2015 Circular Economy Package, reports from the field indicate that legal and policy stumbling blocks are significant inhibitors on more wide-spread implementation. To date, little scholarship has explored these stumbling blocks.

The overarching research question explored in this paper is: how can legal and policy instruments be applied (and designed) to enable initiation and sustainment of circular economy activities? This paper draws on the experience of four case studies: Kalundborg (Denmark), Linköping and Norrköping (Sweden), Peterborough (UK), and Rotterdam (Netherlands). In each of these cases, the circular economy was operationalised by means of an industrial symbiosis network, i.e. networks of dependencies in which organisations exchange waste and by-products. This multi-case study approach is underpinned by a multi-methodological approach that combines field interviews (with national and local policymakers, researchers, and representatives from organisations directly involved in the industrial symbiosis) with comparative policy and doctrinal research.

In order to structure comparison of case studies across four different socio-legal contexts, the paper first contributes a comparative Industrial Symbiosis Development Framework. The second part of this paper explores the incentives and barriers generated in practice by laws and policies at EU, national and local levels. These include at EU level large policy programmes such as the 2015 Circular Economy Package, as well as wider product and service regulatory instruments such as extended producer responsibility, waste management and prevention plans, and landfill tax. Notably the legal barriers encountered centre predominantly on the definition of waste. At national and local levels, additional incentives are provided via focused national strategic plans, as well as building regulation and tax barriers.

This review of the legal landscape for the circular economy reveals a high degree of diversity without absolute support for any particular law and policy system. Instead an integrated regulatory approach seems required to incentivise circular economy operationalisations. In each of the cases the field interviews highlighted a number of missed opportunities in aligning existing laws and policies. It is thus a mix of direct and indirect laws and policies with complementary bottom-up and top-down governance approaches that create favourable contexts for enabling circular economy approaches. This paper seeks to share the lessons learnt from these cases and contribute to a debate about transferable insights for further attainment of circular economies by the policy and public administration community.

### Circular Economy in Brussels : Regional Constraints and policy instrument selection

Muriel Sacco (Political science departement/ Université Libre de Bruxelles)

The Region of Brussels (Belgium) is a small territory of 161 km² between two bigger Regions (Flanders and Wallonia) made up 19 municipalities. The economy of the Brussels region is mainly based on the tertiary sector, which means that there are only a low number of industries and agricultural activities on the regional space. As a way to achieve the ecological transition by reducing the environmental pressure and impacts and saving raw materials, the Region of Brussels (Belgium) has adopted in 2010 an ambitious policy to build a circular economy at the scale of the regional space. At the regional level, this EC public policy breaks with existing public policies by combining environmental goals with economic development to create local jobs for low-skilled workers. In addition, this circular economy policy implements new policy instruments in regard of those that are at work in the regional economic and environmental policies. This new public priority which corresponds to a new business model is also driven by new policy instruments coming from the private sector. In 2018, the Brussels regional circular economy policy received the prize for regional innovation from the Ellen MacArthur Foundation acknowledging these regional efforts.

The circular economy policies (Ghisellini et al. 2016) are not characterised by a single conception of the

business and growth model or a single implementation methodology. By considering the main policy instruments and tools implemented, I would like show how the EC policy and instruments address regional territorial and economic constraints. The main question of this paper is how do the economic, spatial and institutional constraints shape the EC policy instruments? This question refers to the policy tools framework (Howlett and Ramesch, 1993; Lascoumes and Le Galès, 2004; Lascoumes and Simard, 2011). This literature suggests that the policy tools are led by a specific conception of the problems to solve which shapes the policy goals and orientations. The hypothesis of the paper is that the constraints push to innovative and inclusive strategy by including actors from the social economy to increase the number of possible projects .

This paper is based on a set of policy documents and interviews with policy stakeholders and business actors involved in the EC policy process.

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## Session 3The Circular Economy Across Different Sectors: Plastics, Construction, Water & Energy,

Thursday, June 27th 10:30 to 12:30 (MB 2.445)

### The Enablers and Barriers to Circular Economy Business Practices: Evidence from Forerunners in Europe

Jonathan Spiteri (University of Malta)

Marie Briguglio (University of Malta)

The circular economy concept has garnered significant attention among academics, governments and the general public alike, as a potentially compelling solution to spiralling waste management problems and rampant resource use. Various interventions have been launched, including several at European Union level, aimed at promoting the transition to circularity, and examples of business showcasing circular processes seem to be steadily increasing across the globe. But while the nascent academic literature on circularity across various disciplines has made some inroads to defining circularity and to describing good practice, there is little by way of measurement or systematic analysis of the key factors that may enable or hinder the uptake of circular economy business models. The aim of this paper is to empirically-assess the enablers and barriers to business circularity, as well as the policies that might help facilitate the transition towards more circular business models. To this end, we conducted interviews with 107 high-level executives from European businesses, across several key sectors like manufacturing and construction. The interview covered various aspects related to respondents' awareness and concern for issues related to the circular economy, efforts to implement circular economy business practices, the key drivers and barriers in this regard, as well as the role of policy at the local and supranational level. Our results indicate that, even among the greener examples of European business, where recycling and reprocessing of components is present, the use of virgin raw materials as inputs is still largely prevalent. When it comes to the enablers and barriers, the results underscore the importance of business leadership and direction from senior executives in terms of driving the shift towards circularity. We also find evidence that a disconnect exists between the environmental and business arms of these firms, which may hinder the shift towards circular economy business models. In addition, respondents believe that consumers are largely indifferent towards key circular economy product characteristics like reparability and recyclability, which may discourage businesses in their efforts to close the loop, although the perceived importance of quality and durability may assist in creating a business case for prolonging product lifespan. Finally, respondents see a minimal role for government policy, although the introduction of quality standards for reused/recycled raw materials and minimum reused/recycled input requirements emerge as the key policies which may assist in promoting circular business. The results have several important implications, notably in terms of focussing policy efforts on encouraging more circular input usage across businesses, while underscoring the need for greater integration of environmental and business roles within entities.

### Beyond 'Conflict Minerals' and 'Critical Materials': A Circular Economy Framework to Alert Renewable Energy Researchers and Entrepreneurs to Environmental, Political and Social Risk in Renewable Energy Product Design and Choice of Materials

Linda Hancock (Deakin University)

Natalie Ralph (Alfred Deakin Institute, Deakin University)

Internationally, supply chain governance and public policy requirements are increasingly aligning with circular economy concepts. This paper assesses current and potential processes for ensuring new renewable energy (RE) technology development by researchers and entrepreneurs, are in alignment with

the circular economy and wider social, political and environmental international standards. This paper builds on an earlier paper by Hancock et al. (2018) which discussed the ethical procurement of laboratory supplies as vital for developing new RE technologies; primarily focusing on ‘critical materials’ (e.g. lithium and rare earths) and ‘conflict minerals’ (e.g. tin, tungsten, tantalum, gold). Many of these materials are essential to RE technologies and a framework and recommendations for ensuring responsible procurement was developed. The current paper builds on this framework to create a more comprehensive framework/decision tree that addresses circular economy considerations, and chemical, environmental, social, political and economic issues surrounding RE product conceptualisation and design, and the materials comprising new technologies, such as wind turbines, solar panels and battery storage systems. In doing so, the paper assesses the international governance and public policy context related to circular economy, and ethical and sustainable exploitation and production of materials, to identify weaknesses. Finally, we explore potential additional tools for researchers/developers (e.g. questions to ask suppliers; and an index of sustainability dimensions that can be applied in the early conceptualisation phase to new RE technology development). Ultimately, these tools may assist in reducing the production and wasteful use of materials; acknowledging resource limits, ethical materials/device decision-making and the need for more sustainable consumption and production.

### Circular building: need for stimulating rules on cooperation between Dutch private building actors

Stéphanie van Gulijk (Tlburg University)

In 2016, the Dutch government started the government-wide program 'The Netherlands Circular in 2050'. The objective is to realize a circular economy in which waste is greatly reduced. For this purpose, 5 sectors are prioritized among which the Construction sector which is responsible for 50% of total raw materials consumption, 40% of total energy consumption, 35% of total CO2 emissions and 30% of total water consumption. From a European perspective, demolition and construction work is even one of the largest waste sources in Europe: 25-30% of all European waste comes from it. In the Netherlands, demolition and construction even account for 40% of the total waste. For sustainable, healthy product development in construction, essential components such as extraction, production, consumption and removal of building materials must be drastically improved. In the Dutch Transition Agenda for Circular Building Economics concrete points for attention in order to achieve circular construction have been given. An ambitious goal is set: by 2021 there must be stimulating laws and rules instead of restraining. It is generally acknowledged that, in order to meet the circular objectives in construction, the existing legal framework must focus on the needs of its users. But the current Dutch legal framework has a strong, traditional bilateral perspective and does not take into account complex network structures that are frequently used in building processes. The building practice itself indicates that the existing agreements, norms and regulation framework do not fit in with circular construction and that the actual breakthrough only comes when the government creates a fit for purpose legal frameworks. It is to be expected that future European agreements on circular construction will slowly change the legal field, but so far these European policy rules are not yet very directive. In the meantime, private actors fill in the legislation gap and create novel model contractual conditions such as DBFMR contracts. But this private regulation also has a downside from a construction safety perspective. Research on several construction accidents in The Netherlands (in 2017 a car parking under construction collapsed) shows that cooperation between building actors and the compartmentalization of the building process need serious and immediate improvement. Private actors do not necessarily have an eye for the complex (social) structures and collaborations that go hand in hand with the regulation of certain social issues. The legislator must take control. The circular building developments bring a sense of urgency to the legal debate on stimulating legal rules for sustainable and interdisciplinary cooperation in the construction sector.

RC: In what way can Dutch private law legislation design interdisciplinary cooperation between building actors in a circular building future, so that constructive safety in circular construction is guaranteed for a future circular economy?

Methodology: mapping problems with interdisciplinary cooperation in Dutch building practice; analysis of current Dutch private law legislation; comparative research (BEL, GER) on the legal framework applicable to building actors and the coherence of responsibilities; recommendations for better interdisciplinary cooperation in a circular building practice.

### Towards a circular plastic economy - a barrier analysis of closing loops in flexible packaging

Jakob Pruess (ETH Zurich)

**Challenge**

Plastics are one of the most pervasive materials of industrialized economies with a large array of applications, plastic packaging accounting for its largest market. Packaging represents almost half of European polymer consumption (OECD, 2018), representing 4 million tons of food packaging per year. Most plastic waste that is not sent to thermal treatment, accumulates rather than decomposes, in landfills or the natural environment (Barnes, Galgani, Thompson, & Barlaz, 2009). Circular solutions, such as recycling, have the potential to mitigate negative effects of plastic waste but still face a number of obstacles. EU plastic packaging recycling rates currently range around 42% on average (Eurostat, 2016). Recycling rates show a big spread as national waste management systems face different stages of development and as methods of measurement are only now being harmonized. In 2018, as part of the latest Circular Economy Action Plan's legislative proposal, the EU set a recycling target of plastic packaging of 55% by 2030. Industries along the packaging supply chain are – among other activities – increasing their collaborative efforts to de-carbonize and close plastic packaging loops. A consistent policy mix is crucial to support their efforts. Evidence-based regulation and incentives can avoid unintended, potentially negative effects. In this study, we investigate barriers and drivers, hindering or boosting the transition towards closing loops in flexible packaging.

**Literature review and research gap**

While previous studies have clustered barriers and enablers identified by business and civil society stakeholders, scholars and policy makers (Kirchherr et al., 2018; Lawton et al., 2013; Van Eijk, 2015), no barrier analysis along an entire industry value chain has been carried out. Our study systematically identifies underlying actor-specific barriers, enablers and contested issues along the flexible packaging value chain when it comes to closing loops with a focus on recycling.

**Data collection**

We conducted 30 semi-structured expert interviews and a workshop with business managers, association directors, and policymakers. Members of the industry consortium CEFLEX represent the treatment group (15 interviews), while non-members are part of the control group. CEFLEX is the collaborative initiative of a European consortium of companies and associations representing the full value chain of flexible packaging. The consortium's objective is to make all post-consumer flexible packaging recyclable by 2025.

**Preliminary results**

Our analysis shows that main barriers to scale up recycling infrastructure are technical and economic with 'uncertainty on the path forward' as an important meta-barrier. Technical barriers are associated with mixed and contaminated waste streams, while economic barriers relate to structural disadvantages such as a fragmented recycling sector, low investments and price dependencies. Institutional and systemic barriers have received less attention in the past than technical and economic aspects (Ghisellini, Cialani, & Ulgiati, 2016; Kirchherr et al., 2017). We therefore extended our scope towards societal barriers, such as consumer behavior and lacking transparency of existing waste management systems. Some of the identified barriers are contested by actors, e.g., whether tech-push instruments supporting R&D or demand-pull instruments creating markets and accelerating deployment should dominate the policy mix.

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## Session 4Resource Use, Energy Transitions and Food in the Circular Economy

Thursday, June 27th 16:30 to 18:30 (MB 2.445)

### Adopting and Diffusing the Circular Economy as a policy concept: The Case of the European Union

Florian Kern (Institute for Ecological Economy Research)

Helen Sharp (Institute for Ecological Economy Research (IÖW))

The concept of the Circular Economy (CE) has gained increasing attention from actors in science, policy-making and industry over the past decade. Valuing materials within a closed-loop system as opposed to dominant “linear take-make-dispose practices” (Blomsma & Brennan 2017: 603) is regarded a promising approach to balancing economic development with human and environmental well-being (Winans et al. 2017). Within the emerging policy discourse and implementation practice, the European Union (EU) has been a central actor in promoting the shift to a CE (e.g. EC 2015: Closing the loop – An EU action plan for the circular economy). Other actors such as national governments or international organizations (such as the UNDP) often refer to the EU’s work with regard to CE. We therefore selected the EU as a case study of an international policy making body which is promoting the idea of the circular economy and ask two research questions: (1) How did the EU come to adopt CE as a key policy concept and (2) how has it promoted the further diffusion of the concept internationally to states or international organisations (IOs). Our research is based on semi-structured interviews with relevant actors and desk research.

This paper contributes to a recent strand of work within the field of sustainability transitions building on the concept of deep transitions defined as “a series of connected and sustained fundamental transformations of a wide range of socio-technical systems in a similar direction” (Schot & Kanger 2018: 1045). They propose that a limited number of meta-rules which are shared across different socio-technical systems such as energy, agriculture or mobility have for the past 250 years driven societal developments into a particular direction. One example of a meta-rule is the drive to use fossil fuels in systems such as agriculture, energy or mobility. This direction of development has led to a number of negative social and environmental consequences. They therefore argue that such meta-rules need to change in line with demands for sustainability. Their framework aims to explain the emergence, acceleration, stabilization and directionality of such deep transitions through changes in meta-rules and hypothesizes that inter- and transnational organisations play an important role in such processes. Our research views the concept of CE as an emerging set of meta-rules, which could inform a deep transition towards more sustainable ways of producing and consuming across the global economy.

Conceptually, we build on the International Relations literature, which has long studied the role of IOs in the emergence and diffusion of norms and ideas. We build on an understanding of IOs in which they are important policy actors in their own right and are seen as bureaucracies that exercise authority (e.g. Barnett & Finnemore 2004, Barnett & Finnemore 1999). Furthermore, we build on insights on the role of epistemic communities in providing expertise to IOs regarding complex or uncertain policy problems, thereby shaping the ideas and policies that are adopted and diffused by the organisation in its efforts of international policy coordination (e.g. Haas 1992, Haas 2016).

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## The politics of a circular economy in the Dutch wastewater system: a case study on the Energy & Resource Factory

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Recently, environmental and societal problems have increased the calls for a transition in the wastewater system towards resource recovery and the circular economy. Already in 2012, the Dutch wastewater sector developed a broad and relatively open ‘roadmap circular wastewater in 2030’. The roadmap proposed to invest in, among others, the recovery of nutrients, energy and water; large and small-scale treatment methods; and thermal energy (Dutch water authorities & Association of Netherlands municipalities, 2012). The sector also decided to set up the network organisation Energy & Resource Factory (ERF), which is intended ‘to enable the transition’ (ERF, 2014). By 2017, the ERF had translated this process into the development of business cases for a top five of recovered resources (phosphorus, bioplastics, alginate-like polymers, cellulose and biomass) (ERF, 2017).

This paper analyses the mechanisms that underlie the above evolution from a broad transition roadmap to a narrow focus on five resources and business cases. We use three frameworks to analyse this ‘process of closing down’ (Leach, Scoones, & Stirling, 2010) and the political mechanisms involved (Avelino, Grin, Pel, & Jhagroe, 2016; Paredis, 2013; Rosenbloom, Berton, & Meadowcroft, 2016). The paper is based on fourteen interviews, participant observation and document analysis.

Firstly, an analysis through the lens of policy arrangements (Liefferink, 2006) shows that the ERF was not able to change actor roles, resource flows, rules of the game and technology. Although a new discourse becomes stronger, the existing arrangement remains dominant and stable. Secondly, a framework on power dynamics (Arts & van Tatenhove, 2004; Grin, 2010; Hoffman, 2013) helps to interpret the ERF as a free, perhaps protected and experimental, space to accelerate the proposed transition. However, over time, we observe that the ERF is strongly influenced by the ‘old’ arrangement (e.g. Fuenfschilling & Binz, 2018; Pel, 2016; Smith & Kern, 2009; Sovacool, Lovell, & Ting, 2018) through a variety of mechanisms such as resistance from the incumbent actors, the large-scale treatment infrastructure, win-win discourse, decision-making patterns, silo thinking and cost-benefit strategies. These mechanisms seem to oppose rapid adjustments and lead to a lock-in in the current wastewater system (Klitkou, Bolwig, Hansen, & Wessberg, 2015; Walker, 2000). Thirdly, some scholars have proposed a mode of reflexive and interactive governance to avoid lock-ins and to consider multiple transition pathways to facilitate a fundamental shift to sustainability (e.g. Meadowcroft, 2007; van Vliet, 2006; Voss, Bauknecht, & Kemp, 2006). Such a strategy requires the ERF to rethink, or open up, their practices and the involved power relations. It would imply, among other things, defining goals in terms of social needs and sustainability requirements, the involvement of end-users and the actors in other socio-technical systems (e.g. energy, agriculture and drinking water), new and flexible institutions and more sociotechnical experiments (e.g. small-scale treatment) to stimulate learning processes.

## Circular Economy and Food Systems: mobilising pragmatic solutions to change organisational and consumer behaviour

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**Key-words**: Circular Economy; Consumer Behaviour; Change Management; Food Systems; Organisational Behaviour; Policy-making

**Abstract:**
The Circular Economy (CE) concept has gained momentum in Europe from the 1990’s onwards. It pro
transforming it into inputs to feed productive chains. It is the result of a new paradigm contr
model. The CE proposal is that the value of products, materials or resources remain circulating
government, NGOs, and people mobilising circular innovations in the food chain. Increasing awar
consumer behaviour. Hence, contributing to a pragmatic and tangible application of CE in relati
circularity principles will require organisational change that will not be immediate in any sec
This paper reviews the academic and ‘grey’ literature (government, business, NGO) relating to C
business process: design, planning, supply chain, sales, waste management. Admitting the possib
the transition towards CE, not the final stage. The danger in using the concept of CE regarding
in ‘circular washing’, which can turn the initiative into a new form of ‘green washing’. Instea
integrated and play roles in the economy for as long as possible, even in different functions o
resources management. Thus, food waste management can be considered a critical step for a trans
realm where CE principles are applicable to food systems; but food production, restaurants, pri
according to the Food and Agriculture Organisation of the United Nations. Given those figures
and the complexities of food distribution worldwide, the transition of the food sector towards
practice by stressing how CE is being employed in food systems, by identifying actors and actio
enablers of potential innovative solutions.

## Governance, Natural Resources Rent and infrastructure Development: Evidence from the Middle East and North Africa

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Volume of scholarship debated the utility and benefits of natural resources rent in particularly the oil through lenses of resources curse or blessing. The results of these studies are rather divergent. While some prove that oil abundance increase the likelihood of conflicts and civil-war onset, based on rent-seeking and rentier state model, as Fearon and Laitin (2003); Collier and Hoeffler (2004); Reynal-Querol(2002); Dreher and Kreibaum (2016). Other recent literature indicates a non-significant, yet a negative effect of oil wealth on violent conflicts (John, 2005; Smith, 2004; Cotet and Tsui, 2010; Costello, 2018). Countries endowed with natural resources are doomed to suffer from weak institutions and concentrated power, as politicians have no incentives to foster development and innovation. For example, politicians are more likely to relinquish tax revenue and rely instead on oil windfalls in petro-states (Fearon and Laitin, 2003; Fjelde, 2016; Arezki and Brückner, 2011).

In the Middle East and North Africa (MENA) oil is dominant natural resource and countries suffer from structural issues in governing. They suffer from weak institutions, corruption, violent conflicts and political instability. Extending the resources curse hypothesis, other recent studies demonstrate that the relationship between oil windfalls and armed conflict may be bidirectional, unidirectional, or no causality relations may be present. The results of military spending burden, strongly depend on the empirical methods, the time period studied and the countries in question, which reveals that the results are sensitive to different analytical methods.

In this study we will departing from natural resources rent and curse arguments to link natural resources with good governing indicators. These indicators include government effectiveness, rule of law, regulatory quality and political stability. In light of the recent findings, this study attempts to examine the impact of natural resources rent and good governance on infrastructure development in the Middle East and North Africa (MENA) using empirical methods of fixed effect, random effect and system GMM methods covering a period (1996 – 2016).