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Session Title	Sust	tainal	ole M	anag	emer	nt of S	Soils:	Linka	ges b	etwee	en Or	ganic	: Matte	r and	Mine	erals	
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Session Title	Circ	ular \	Nate	r Mar	nager	nent:	Resc	ource	Reco	very a	nd R	euse	Potenti	als			
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	We glot non dese dire rem was othe slud	We will also discuss direct or indirect nutrients recovery: while nitrogen is subject to a global cycle even with conventional wastewater treatment, phosphorous is a geogenic non-renewable resource that – as it cannot be substituted for food production deserves paramount attention. The options for discussion and evaluation vary from direct use of wastewater, where nitrogen, phosphorous and potassium are no removed, while pathogens are – to produce safe irrigation water. For indirect use wastewater is treated as far as the process will allow, while nutrients (and potentially other sources in the sense of urban mining) are recovered from the residuals, such a sludge or the ash after incineration of the sludge.															to a enic, on – rom not use, ially h as
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Session Title	Circ	cular Economy for Building with Secondary Construction Materials to Minimise source and Land Use panisation has become a global trend in recent decades; this development companied by a considerable number of challenges. The construction industry is of the most resource-intensive sectors in the global raw material economy and ha ulti-level impact on land use. On the one hand, the extraction of primary r terials, such as sand and gravel, generates very high land consumption. On t er hand, construction and demolition (C&D) waste is subject to downcycling o posited after demolition, which causes demands in interim storage and landfill sit thermore, the production of mineral commodities, such as concrete, leads to h tributions to greenhouse gas emissions. The ratio between the release of C uivalents and resource utilisation is disproportionate if the life cycle of the mate cut after demolition. implementing circular economy (CE) concepts, the developments described abor to be counteracted. Mineral waste is recycled, raw material productivity is increase d the construction industry's contribution to the greenhouse gas productor fuced. In addition, economic concerns are addressed by the recycling of mine ste. The supply of primary raw materials depends both on the market situation a e extraction rate in the opencast mines, which can quickly lead to a sup ttleneck (e.g., in 2017 and 2018). For these reasons, better resource efficie mbined with intelligent and flexible recycling must increase to meet future needs ilding materials, reduce CO ₂ emissions and limit land use. e most important approach to tackling this problem is the reuse of mineral wa d residual materials. However, the industry is prevented from exploiting f tential due to the following challenges: concentration on short-term objecti mplex supply chains, lack of cooperation between stakeholders with misaligr entives and goals, complex uncertainties, legal barriers, and the lack of a commor reed definition of closed-loop recycling within the industry.															
	Res	ource	and	Land	Use												
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	X	conomy. Case-study oriented contributions are welcome. cademics Practitioners Decision makers / Legislators x x 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 1 x x x x x x x x x															

Session Title	The Ecc	e Role of Green Infrastructure for Sustainable Water Management in a Circular onomy een infrastructure elements are a prime example of nature-based solutions (N ⁻ sustainable resource management. NbS are ecosystem related approaches t ake use of existing ecosystems, restore a natural ecosystem, or mimic t1 nctions. Green and natural infrastructure approaches are often applied in wa anagement. This infrastructure performs the same functions as grey infrastructur ⁻ instance constructed wetlands as sewage treatment plants, or exten- odplains as water retention ponds for flood protection. Wetlands – both natura nstructed – cycle resources, be it water or nutrient, producing clean water omass for bioenergy production and creating habitats for wildlife. een infrastructure can be used in multiple settings to substitute similar g rastructure, providing the additional benefit of habitat creation. Gr rastructure is also gaining attention in urban spaces for air pollution control duce heat island effects and to support overall human health. the framework of the United Nations Sustainable Development Goals (SDGs), s rget 6.6 particularly looks at the extent of wetlands, whereas SDG Target 2 courages the use of multifunctional green spaces in cities. Understanding undary conditions of the usefulness of either protecting, restoring, or construc tirely green infrastructure systems is still a challenge, as communities of prac e not the same across different modalities. e must ask: What are the limitations of using different types of systems in differ ttings? What are the limitations of using different types of systems in differ ttings? What are the limitations of using different types of systems in differ tings? What are the risks, trade-offs, and synergies of using green infrastruct d how can they contribute to circularity? In which settings do they make sense here might they create an increased risk? When are they sustainable? the objectives of this session include detailing the settings in which different syst- green in															
Background, Research Gap and Objectives	makeuse ofexistingecosystems, restore a naturalecosystem, orminicthefunctions.Green and naturalinfrastructure approaches are often applied in watemanagement.This infrastructure performs the same functions as grey infrastructureforinstanceconstructed wetlands assewagetreatmentfloodplains as water retention ponds for flood protection.Wetlands – both natural ofconstructed – cycleresources, beitwater ornutrient, producing cleanwater anbiomass for bioenergy production and creating habitats for wildlife.Greeninfrastructure can beused inmultiplesettingstosubstitutesimilargreeinfrastructure,providingtheadditionalbenefitofhabitatcreation.Greeinfrastructure is also gaining attention in urban spaces for air pollution control, treduce heat island effects and to support overall human health.In the framework of the United Nations Sustainable Development Goals (SDGs), SD:Target 6.6 particularly looks at the extent of wetlands, whereas SDG Target 11.encourages theuse of multifunctional green spaces in cities.Understanding thboundary conditions of the usefulness of either protecting, restoring, or constructinentirely green infrastructure systems is still a challenge, as communities of practicare not the same across different modalities.We must ask: What are the limitations of using different types of systems in differersettings?What are the either offs, and synergies of using green inf													NbS) that heir ater ure, ded al or and grey reen l, to SDG 11.7 the sting stice rent ture and ems t of ools			
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		 ban Agriculture: A Systemic Approach for Integrated Natural Resource Management id Socioeconomic Benefits beiety and researchers are increasingly more focused on urban food production – iestioning the globalised food system and its negative impacts on the environment i.g., high water demands, soil degradation, food waste). The production of food with- cities through urban agriculture can be considered a nature-based solution, provid- g multidimensional environmental, economic, and social benefits depending on the pe of production. Integrated natural resource management, through urban agricul- re, can include technical (e.g., vertical farming) and nature-based (e.g., permacul- ire) food production types, with a market-, prosumer-, or subsistence-focus. this session, we will discuss the multidimensional benefits and risks of urban agricul- ire as well as drivers and constraints of its implementation. The session is open for fferent types of urban agriculture and can include urban farming and urban garden g activities, such as peri-urban farming in urban agglomerations, community ipported agriculture, vertical farming, community gardens, or edible cities. iggested topics: Sustainable food production in cities Impact assessment of urban agriculture (environmental social economic) 															
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	In tl ture diffe ing sup	n this session, we will discuss the multidimensional benefits and risks of urban agricul- ture as well as drivers and constraints of its implementation. The session is open for different types of urban agriculture and can include urban farming and urban garden ing activities, such as peri-urban farming in urban agglomerations, community supported agriculture, vertical farming, community gardens, or edible cities. Suggested topics:															icul- for den- nity-
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		nplication of Urbanisation on Building Material Induced Land Use, Soil, Water, and /aste in Urban Regions rbanisation is a global trend. Since 2007 more than 50 per cent of the world's pop tion live in urban areas – and the trend is still ongoing. With increasing urbanisatio ate and increasing prosperity, the demand for building materials, such as stone and, and clay, is growing; the result is a regional shortage of building material ro purces, which are often transported over short distances due to their low added va e. The continued intensive mining of building materials has far-reaching consequen s – land interventions and land-use conflicts in urban regions are becoming mo cute. Riverbank subsidence, destruction of agricultural land, and landscape destru on are examples of the dramatic consequences in the hinterland of cities. The of the prerequisites for effectively tackling this issue is a developing a better u erstanding of the links between urbanisation, building material consumption, ar neir indirect effects on land, water, and soil. This includes determining which met dological approaches are suitable to quantify these indirect effects in a regional co ext, developing starting points for making urban regions more resource-efficient as a verall system, and what support can be provided by the methods and concepts di ussed in the research field of industrial ecology, such as material flow analysis, lif ycle assessment, ecosystem services, ecological footprint, and circular economy – ar ow do they have to be adapted. These key points will be addressed in this sessiv <i>i</i> th the contributions and discussions submitted. Case study-oriented contributio															
Session Title	Imp	olicati	on of	Urba	anisat	tion o	n Bui	lding	Mate	erial Ir	nduce	ed Lar	nd Use,	Soil, '	Wate	r, and	ł
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Session Title	Eco	nomi	c Poli	cy Ins	strum	ents	for a	Trans	sition	towa	rds a	Circu	lar Eco	nomy	/		
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	1	usiness Models for a Circular Economy in a Sustainable Society he circular economy concept provides a large variety of economic opportunities of the pathway towards a sustainable society. Nevertheless, the "circular mindset" – erm used by the World Business Council for Sustainable Development – is not yet omponent of the DNA of companies. This reflects the general perception of enviro iental management as a "must" instead of an economic opportunity: For more that 0 years the prominent question in environmental management has been "Does it pro- be green?". Even if there is empirical evidence for a positive relationship, this e ost approach does not support the search for business models for a circular econom in this session the focus will be on the question "How does it pay to close the loop?". he following questions might be addressed: 'alue proposition Which products and services can be developed? What relationships are crucial? 'alue creation What resources are needed? What resources are needed? What channels are relevant? What technology is needed? 'alue capture What costs are involved? What costs are involved? What resources can be compared?															
Session Title	Bus	iness	Mod	els fo	or a C	ircula	r Eco	nomy	/ in a	Susta	inabl	e Soci	ety				
Background, Research Gap and Objectives	The the terr com mer 40 y to k	 ie circular economy concept provides a large variety of economic opportunities on e pathway towards a sustainable society. Nevertheless, the "circular mindset" – a rm used by the World Business Council for Sustainable Development – is not yet a imponent of the DNA of companies. This reflects the general perception of environ- ental management as a "must" instead of an economic opportunity: For more than 0 years the prominent question in environmental management has been "Does it pay be green?". Even if there is empirical evidence for a positive relationship, this ex- ost approach does not support the search for business models for a circular economy. this session the focus will be on the question "How does it pay to close the loop?". he following questions might be addressed: alue proposition Which products and services can be developed? Who might be customers? What relationships are crucial? alue creation What are key activities? What channels are relevant? Who are partners? What technology is needed? What costs are involved? What revenues can be generated? 															
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Session Title	Cha	nces and Limitations of Circular Economy in a Resource Efficient Society ste generation rates are rising around the world; in 2016, the worlds' cities gene d 2.01 billion tons of municipal solid waste, amounting to a footprint of 0.74 kil- ns per person per day. With rapid population growth and urbanisation, annu te generation is expected to increase by 70 per cent from 2016 levels to 3.40 b tons in 2050. Globally, more than 90 per cent of that material ends up on landfil lumpsites. Managing waste in a more efficient manner is the first step towards ular economy (CE), where most products and materials are recycled or re-use eatedly. By promoting closing-the-loop production patterns within an econom em, CE aims to increase the efficiency of resource use with more in-depth consi- ion for extended producer responsibility. It places a special focus on urban ar <i>ustrial</i> waste, to achieve a better balance between economy, environment, ar ety. Therefore, an understanding of interactions between sustainable waste ma ment and the production process, the product design, and the decoupling of ec- nic growth and resource use, is needed for a circular economy. hin the last years, waste recycling rates have increased even in developed cou s. Waste and pollution prevention are the foremost aim developing a circul nomy. A better reuse and recycling of waste, by using better and more recyclin ndly construction processes for goods, should be demanded to fulfil higher rec g rates. Additionally, new economic patterns of production must be established ' ubat the potential threat of unsafe products of unknown specification. CE impli- application of cleaner production patterns at company level, an increase of pr ers and consumer's responsibility and awareness, the use of renewable technol and materials as well as the adoption of suitable. Clear, and stable policies ar															
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Session Title	Eco	syste	m Sei	rvices	Info	rming	g the	Trans	ition	Towa	rds a	Circu	ılar Eco	nomy	1		
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Session Title	Fina	ancin	g the	Trans	sition	towa	ards S	Sustai	nable	e Reso	urce	Mana	agemen	t and	Circu	ular	
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Session Title	Syst	ems	Conc	epts S	Suppo	orting	g Sust	ainat	ole Ec	onom	y Cor	ncept	s and N	exus	Appr	oache	es			
Background, Research Gap and Objectives	Circ syst stuc in a the infa com cou the foun rest wha and The and sust con and exa as s	Circular, green, and bio-economy concepts as well as nexus approaches are inspired by systems thinking. On the one hand, they are informed by natural processes that are studied in physics, biology, and ecology. On the other hand, they consider the society in a comprehensive manner, including cross-sectoral interrelations. However, the theoretical foundation of these integrated concepts and approaches is still in its infancy. One reason for that seems to be their comprehensiveness and complicatedness, which cannot be covered by individual disciplines. Another reason could be limitations of combining theories from relevant disciplines to jointly address the relevant material and immaterial interdependencies. The lack of theoretical foundation leads to ambiguity of the integrated concepts and approaches, as well as restricts description and explanation of empirical findings. This raises the question of what can be learned from a more detailed understanding of different systems theories and frameworks and the exploration of possible interrelations.															d by are ciety the its and ason ress tical II as n of ories n of epts nent for mes			
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Session Title	Sus	staina	bility	Asse	ssme	ent of	Natu	ral R	esour	ces U	se in	a Circ	cular Ec	onom	ıy		
Background, Research Gap and Objectives	A c tain pro (re reg suc on, cor me atio gar ass Acc res and plin cor	cordir co	ar eco ty ass es rar in th ation impa nater of su s of s ethoo to th ent. ngly, o es in a naniti highl	Asse onom sessm ges f le soc . On t let as rial pr ustair sustai ds. It ne (le comp a circu es dis ly dive	in a bill also areher also areher also also areher also also also also also also also also	nt of natu acros (i) sou to (iii ne ha nent sing, ty ne ity in depe proce	Natu ural r s a nu urces i) attr nd, tl for so flows reds t a bal nds o edura ness o my ir lower ragme d tran	rai Ro esou and f ibuti nis in ource and o col ance an the l frar	esour rces, er of their on to volve s and (re-)u nside d ma e inst d ma e inst staina ciple he m l and ency	apply sub-p regen o natu s a nu s a nu d sink use. N r the nner i itution orks a ability involv ethod thus c of sus	ing a roces erational so ral so ral so ral so ral so roces and th asses res a ologi quest taina	a Circ nexi ses on an ource r of r d mat ver, a ogical ving s ontex ne va ssmer multi cal re ions p bility	tular Ec us appr The sco d (ii) pr s or sin ather di erial flo assessm , social pecific i t of the luation ht for th tude of pertoir provisio	onom oach, pe of ocess iks ag iffere ow ar ient i , and indica e soci refer natu e of t n of t	, requ f releving, f gain v nt ap nalysi n line l econ ators fety n rence e of n ral sc hese the re	uires vant lows vith t proad s, and with nomid and v nainly s for atura ience disci- equire	sus- sub- and cheir ches d so the c di- valu- v re- the l
	The multidisciplinary session provides a forum for identification of gaps, opportuni- ties, and research demands referring to a consistent and comprehensive sustainability assessment of natural resources use. Its methodological focus will be illustrated by examples from selected natural resources and international empirical studies. We will aim to publish contributions and discussion outcomes as a special issue or edited vol-																
Target Audience	Aca	demi	CS	Prac	ctitio	ners	Dec	ision	mak	ers /	NG	0					
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Session Title	Science-Policy Interfaces for Managing a Natural Resource Nexus																
			-														
Background, Research Gap and Objectives	bio-physical, environmental, or technical understanding towards political and societal behaviours and needs. There is a wide debate about different ways of addressing "the Nexus" that range from which resources and sectors can or are being addressed to which methods can be used and how to determine nexus impacts. Nexus goals are varied but often connected to an overall aim of advancing towards sustainability and sustainable development. Similar in nature to integrated management approaches, nexus thinking is based on holism and systems thinking, necessitates interdisciplinary approaches, and intends to foster participation and inclusion of stakeholders in decision-making.															the etal "the d to are and hes, nary s in	
	The nexus concept is focused on three features:																
	(i) Interlinkages between natural resources (i.e., water, energy, food, and soil) are taken into account, trade-offs among them are made explicit and potential synergies are exploited. In light of this, natural resources are managed sustainably and in an integrated manner. Such an approach will require a focus on bio-physical, socioeconomic, and policy interactions;															are gies an ical,	
	(ii) Governance processes are an explicit part of the nexus concept, including policy coherence. Policy coherence is an attribute of policy reducing conflicts and exploiting synergies within and across policy areas at different spatial scales. A lack of policy coherence has the risk of trade-offs from inadequate decision-making. Optimising food production, for example, might cause trade-offs with other natural resources (e.g., water and soil). The nexus concept allows us to seek synergies and overcome trade-offs; and																
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Session Title	Circ	ular I	Econo	omy a	ind So	ocial I	nclus	ion: F	Partic	ipato	ry and	d Equ	itable A	ppro	ache	s for			
	Sust	tainal	ble Re	esour	ce M	anag	emen	t											
Background, Research Gap and Objectives	To achieve a circular economy as a system that meets our needs within planetary boundaries, we need to be comprehensive and think beyond environmental quality and economic prosperity.															tary ality			
	 In this session, we investigate the multidimensional linkages between sustainable resource management and social inclusion, for example by studying networks. We particularly welcome contributions that integrate poverty and inequality analysis in the conceptualisation of a circular economy. Input that analyses gender effects at the macro and micro level is also highly appreciated. We intend to explore an inclusive, innovative approach to activate people to strive towards a sustainable resource management across ages and disciplines. Further questions guiding this session are: Where do we have blind spots and might need to change our perspectives? How can innovation be accelerated in the light of pressing environmental challenges? Which groups of people are not considered enough as potential enablers of pircular accentry? 															e re- par- the mac- trive chal-			
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