

The Anthropocene and the great transformation: Perspectives for critical governance and transformation research in the spatial sciences

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Antje Bruns

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Antje Bruns

THE ANTHROPOCENE AND THE GREAT TRANSFORMATION – PERSPECTIVES FOR CRITICAL GOVERNANCE AND TRANSFORMATION RESEARCH IN THE SPATIAL SCIENCES

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Abstract

This article critically examines the new guiding concept of transformation in the spatial sciences with regard to its underlying narrative – namely the Anthropocene. Without such an examination, spatial science research might contribute to apolitical, spatially undifferentiated and Eurocentric governance and transformation research. Hence, I propose to place political aspects and questions of power more firmly in the focus of theoretical, methodological and empirical interest and to take up a general perspective of inequality. Plurality and diversity (from a social and spatial perspective as well as with regard to knowledge production) therefore become the central transverse dimensions of governance and transformation research, which should essentially be reflexive.

Keywords

Epistemological orientation – problem framing – reflexivity – knowing and non-knowing – provincialising theories and practices

1 Introduction

Transformation has become a new guiding concept, in the spatial sciences as well as other disciplines, and influences the way we reflect on the (spatial) future and the shaping of it. This is reason enough for a critical reflection on the issue. In this article, I will predominantly focus on the Anthropocene as a central explanatory narrative, therefore leaving out other schools of transformation thought (cf. Schneidewind/Augenstein 2016).

The Anthropocene has been 'gifted' to us by geologists (cf. Latour 2014a: 15 with reference to anthropology) and is therefore based on specific epistemological premises. This epistemological orientation reveals a narrative with consequences for the understanding of transformation, including problem framing and identification, the research questions that are posed, the knowledge that is generated, and the options for shaping the transformation which are taken into consideration. Therefore, the present article will discuss which epistemologies, rationales and constellations of explanation guide the great transformation and the discussion of how it might be shaped. On this basis, we will address a few omissions in this account of knowledge and its blind spots. This visualisation of the absent (Arturo Escobar talks of a 'sociology of absences', *ibid.* 2016) is a necessary process of reflexivity in order to scope out the conditions and possibilities for shaping spatial transformation processes. The question is: whose ideas about the future find their way into the debate – not just the political debate, but also the (spatial) scientific one? In other words, which knowledge is produced and becomes universal knowledge? Whose needs are already marginalised today and with a view to future social conditions? Who has access to the centres of decision-making and who does not? According to this reading, the great transformation essentially raises political questions, and these cannot and should not be ignored by governance research in the spatial sciences.

The political sphere is the second area which I discuss in the present article. The questions here are what will be the object of negotiation and who will be involved as a political subject in the decision-making process (cf. Bröckling/Feustel 2010) – for example, in urban real laboratories which are discussed as an element of a transformative planning culture (Schneidewind 2014). It is also necessary to ask which areas of society are experiencing politicisation (or depoliticisation), and where resistance and conflicts exist. A knowledge of dissent is essential for governance and transformation research in the spatial sciences in order to recognise and scope out alternative spaces of thought and action.

2 The great transformation: contexts and analysis of the problem

2.1 The Anthropocene and planetary boundaries

The natural sciences have built up an enormous body of knowledge about global change in recent years through large-scale assessments such as the IPCC or the Millennium Ecosystem Assessment. They have successfully bundled major findings and combined them into overarching concepts. Prominent and broadly received

examples are the concepts of the Anthropocene and of planetary boundaries (Crutzen 2002; Steffen/Crutzen/McNeill 2007). These concepts attempt to address the interaction between social and natural processes.

The concept of the Anthropocene has become virtually indispensable to academic discourse since the turn of the millennium (cf. Fig. 1: Number of publications since 1999). But the term is present in public debate, too, and is taken up in exhibitions and in theatre productions. Originally, Paul Crutzen aimed to express the idea that the geological epoch of the post-Ice Age period (Holocene – literally ‘the completely new’) has been superseded and that we are now situated in the human era (Crutzen 2002). In this era, human beings have become a dimension which is relevant to the earth system, since it is no longer merely local and regional, but also global material cycles and exchange processes that are decisively influenced and changed by people. This basic idea has found its way into the concept of planetary boundaries, in which nine dimensions (e.g. climate change, land use change, fresh water) which are essential for socio-ecological stability were evaluated (Rockström 2009; Steffen/Richardson/Rockström et al. 2015).

The concepts of the Anthropocene and of planetary boundaries are closely interconnected with regard to their problem framing and interpretation and are used as a central reference in order to explain and legitimise the great transformation (WBGU [German Advisory Council on Global Change] 2011; Kersten 2014). Spatial and environmental governance plays an important role here: ‘Science assessments indicate that human activities are moving several of Earth’s sub-systems outside the range of natural variability typical for the previous 500,000 years. Human societies must now change course and steer away from critical tipping points in the Earth system that might lead to rapid and irreversible change. This requires fundamental reorientation and restructuring of national and international institutions toward more effective Earth system governance and planetary stewardship’ (Biermann/Abbott/Andresen et al. 2012: 1306). The explanatory context for the necessity of transformation can, therefore, be expressed as follows: the anthropogenic global environmental change and, in particular, the already exceeded or approaching tipping points make it necessary to navigate human-environment relations within planetary boundaries. This navigation is ultimately about collective decision-making (governance) and is directed towards sustainable futures. This means that the concepts from the natural sciences (Anthropocene, planetary boundaries) point to the political sphere. Thereby, the concept of the Anthropocene pulls people and society into earth system science – they are now no longer seen as external dimensions but as a constitutive element of socio-ecological systems.

Several scientists therefore refer to a ‘change of perspective’ and ‘epoch change’ (Jahn/Hummel/Schramm 2015: 92). Since then, the question has been discussed as to whether such a change of perspective is actually happening and whether, within this, the underlying problematic relations between nature and society, i.e. the causes of multiple crises, are taken into consideration (Brand 2016; Görg/Brand/Haberl et al. 2017; Jahn/Hummel/Schramm 2015).

2.2 Semantic shift or new figure of thought?

Is the concept of the Anthropocene therefore more than a semantic shift, namely a new figure of thought which affects the relationship between the sciences and the relationship between science and society/politics? This debate cannot be conducted in detail here (cf. for this Brondizio/O'Brien/Bai et al. 2015; Castree 2015; Jahn/Hummel/Schramm 2015; Kersten 2014), but a space of possibility opens up for the spatial sciences to contribute findings about the socio-spatial change, the change in spatial governance, about trends and design possibilities (and limits) and to signal their presence at conferences, in publications and in inter- and transdisciplinary research projects.

Even though the concept of the Anthropocene is controversial with regard to its epistemological premises, there is no doubt that the social and political challenges cannot be seen as separate from the ecological question. Rather, the multiple and overlapping crises demand an in-depth exploration of the question 'Where does nature end and society begin?' (Braun 2009: 20). The boundaries between nature and society were never clearly determined, nor were they undisputed (Descola 2013). This makes it all the more necessary to address the epistemological and ontological premises as well. In the words of Thomas Jahn: 'Globalisation, climate change, demographic change and environmental pollution are current examples of problems with a new type of structure: in them, social action and ecological effects are so closely connected that the previous seemingly reliable boundaries between society and nature are becoming increasingly blurred' (Jahn 2008: 25). Precisely because problematic situations manifest themselves in a spatially differentiated way and the transformative possibilities for shaping them are dependent on diverse contextual factors (e.g. questions of political legitimacy), the spatial sciences are called upon to explore the relationship between society, politics and space in a differentiated way and to illuminate the black box of navigation within planetary boundaries.

In so doing, the social dimension, as a still under-represented element in global change research, must be made visible in its spatial configurations. Being affected by environmental pollution, having access to resources or to affordable living space are reference points for the great transformation to a much lesser extent. Nonetheless, there are international assessments and reports on these aspects – for example, the World Social Science Reports, in which global environmental change was addressed in 2013 (UNESCO 2013) and inequality in 2016 (UNESCO 2016). These studies show that a mere description of scientific limits is not sufficient – as Kate Raworth showed with the image of the doughnut as a *safe and just operating space* (Raworth 2012). The limits of the earth system must be seen in relation to the social question and to its shaping by means of political economy. If this change in perspective is brought to fruition, it would inscribe a reflexive moment into the thought patterns in relation to the Anthropocene.

If the Anthropocene is therefore understood as a (demand for a) change in perspective, and if this involves a rethinking of relationships between society and nature, reflexivity is a major component of the concept. Kersten points out that the Anthropocene should be a reflexive concept anyway, since this new geological epoch is not

determined retrospectively (as is usual in geology) but firmly fixed on the present, and above all, the future. He explains that, for this reason, ‘in contrast to other geological eras, the Anthropocene cannot simply make do with a factual description; rather, it virtually automatically demands a reflexive concept of ethical principles and legal governance’ (Kersten 2014: 381). With this in mind, it is worth looking at the relationship between the Anthropocene and the great transformation.

For the Anthropocene, global environmental change is constitutive – whether it is climate change, the decline of biodiversity or the degradation of moors and wetlands. By contrast, the transformation discourse rather maps the tasks and conditions for shaping change (governance of transformation, governance for transformation). Thus, in simplified terms, one could say that the Anthropocene is originally more of a descriptive and analytical figure of thought, whereas transformation contains prescriptive elements: transformation – understood in the sustainability discourse as an intended transformation – is directed towards the future and its shaping; it must inevitably address normative elements and act in the political sphere.

However, the Anthropocene discourse very quickly departed from this original path of a stock-taking of scientific knowledge by addressing the above-mentioned navigation within planetary ‘crash barriers’ and the role of politics and governance, and not least by demanding a new ‘social contract for sustainability’. The identification of the problem primarily specifies implementation deficits, which are to be remedied by a more precise system understanding (more data and more precise data). But beyond this, new action-driving instruments and objectives are also being formed (e.g. the Sustainable Development Goals [SDG]): the planetary boundaries (PB) ‘framework is one step on a longer term evolution of scientific knowledge to inform and support global sustainability goals and pathways. This evolution is needed more than ever before; there are severe implementation gaps in many global environmental policies relating to the PB issues, where problematic trends are not being halted or reversed despite international consensus about the urgency of the problems’ (Steffen/Richardson/Rockström et al. 2015: 8). Given such a diagnostic framework, which lacks any deep exploration of the findings from the social and political sciences which indicate the causes of the multiple crises, there is a long way to go before the Anthropocene as a new figure of thought also reaches and transforms the epistemological basis of earth system sciences.

In this sense, a fundamental criticism of those who describe the Anthropocene as mere semantics is also that the solutions – once again – are seen in technological and/or management-oriented measures, and that the basis of knowledge and problem framing are not the subject of discussion and reflection (Manemann 2014: 37 et seq.).

3 The planetary perspective, world society and the political sphere

3.1 The global subject – depoliticising the debate

The Anthropocene and the metaphor of planetary boundaries demand action with great urgency at the global/planetary level. The global scale virtually inevitably

produces the demand for a great transformation. This great transformation, which is implemented by ‘humankind’ by means of a ‘new global social contract’, pursues the idea of carrying the ‘joint responsibility for the avoidance of dangerous climate change, and the aversion of other threats to humankind as part of the Earth system’ (WBGU 2011: 2). However, it is rightly pointed out that there is no ‘humankind’ as a whole (Latour 2014a; Bauriedl 2015), but rather that the socio-ecological crisis phenomena are characterised precisely by their extreme inequality with regard to effects and responsibility.

Within earth system sciences, too, criticism has been expressed of the construction of an exclusively global perspective, with the result that the planetary boundaries have been supplemented by regional boundaries (Dearing/Wang/Zhanget al. 2014). Nevertheless, there has as yet hardly been any opposition to the depoliticisation of the academic and public discourse: ‘A critique of societal domination, society’s domination over nature and a perspective of emancipation are largely absent’ (Brand 2016: 25). The criticism is therefore that more is being obscured than is being made visible. The world of the Anthropocene is chiefly characterised by inequality and fragmented developments which occur along different axes: between the Global North and Global South, between rural and urban areas and within increasingly fragmented cities, between those who consume a lot of resources and those who consume few, between those who participate in decisions and those who are affected by those decisions, and above all, between rich and poor.

What is the consequence of this? From the perspective of the spatial sciences, this points directly to the needed de-composition of the global, and to a differentiated view of the interaction between society, politics and space: ‘The notion of the Globe’ – as Latour stated in his Anthropocene lecture – ‘and any global thinking entail the immense danger of unifying too fast what should be composed instead’ (Kersten 2014: 394). Thus, although the global perspective is a strong metaphor, it leads to spatially undifferentiated and therefore questionable diagnoses (Gebhardt 2016), which have only very limited suitability when it comes to identifying options for shaping the transformation.

3.2 Inequality in the Anthropocene

It is precisely the visualisation and exploration of inequality and its spatial manifestation – and thus the adoption of a general inequality perspective in and towards the Anthropocene and transformative development paths – which, as scientific perspectives, must be incorporated and strengthened (as also stated by Görg/Brand/Haberl et al. 2017 with reference to the entire science of sustainability).

‘How fragile is the social architecture of our cities?’ This was the title of an expert report which appeared in mid-2018 and presented new data about how strongly segregated German cities currently are along social, ethnic and demographic lines (Helbig/Jähnen 2018). Alongside these socio-spatial relationships of inequality, there are also questions such as that of socio-ecological inequalities – for example with regard to access to water, energy or food – which have emerged and undergone

reification. Analyses show that these inequalities are often historically inscribed in the allocation of land and usage rights and thus refer to colonial power relations (Dietz 2018). When analysing the Anthropocene, which is often also paraphrased as ‘the great acceleration’, from the perspective of accelerated globalisation and neoliberalisation, it is all the more important to examine the colonial structures which have enabled an economic and social system based on resource extraction and growth.

However, it would be very incorrect to relocate this matrix of colonial power only to remote regions (the Global South) or to the past. Rather, a large number of studies show that ‘our’ cities in the Global North are also a product of these forces. The increasing inequality and fragmentation goes hand in hand with discursive practices of devaluation (for example, the term ‘problem neighbourhood’, which is often further characterised as having a ‘high proportion of people with a migration background’) and with specific planning activity practices through which this inequality is often perpetuated (Ha 2014).

3.3 Provincialising the Anthropocene

The colonial order has a long reach, since the ‘ideas of the modern city [...] are closely connected with the formation of colonial cities in the course of colonialism’ (Ha 2014: 31). Morrison argues in a similar way with regard to the Anthropocene: ‘the concept hides a disturbing extension of colonial discourse into a postcolonial world’ (Morrison 2015: 76). Reflexive research considers this interconnection – as does critical urban research, using post-colonial approaches or (urban) political ecology – and then critically goes against the grain of its own assumptions and conceptions. However, these critical perspectives are almost nowhere to be found in the report by the German Advisory Council on Global Change on the transformative power of cities or in the report on the social contract, as has already been discussed in detail elsewhere (Bauriedl 2015; Bruns/Gerend 2018).

But if we then discuss global spatial development trends and the great transformation (which is also global) with a very narrow frame of reference for knowledge production, what can we see, recognise or know about the dynamics between nature and society in the Anthropocene and how they can be shaped? Very little. Our first task is therefore to acknowledge our lack of knowledge in order to be able to adopt a reflexive research position and to critically examine our own orthodoxies. This includes reflexivity with regard to the Eurocentrism which is inscribed into the Anthropocene (Morrison 2015) and which restricts our framework of thought and action. Chakrabarty talks in this context of the necessity of provincialising Europe (Chakrabarty 2009) in order to enable other regions and societies to have an independent historiography, interpretational sovereignty and knowledge production which is not centred on Europe. Recent urban geographical work takes this up and uses it to generate a contextual, situated understanding of the city (Lawhon/Ernstson/Silver 2014). This also permits other ideas to emerge of what a city is, could or should be. This epistemological expansion is described by Escobar as a pluriverse, which is contrasted with the singular universe (Escobar 2016) and which permits new, not yet imagined futures.

4 Future, shaping, participation

Future ideas which depart from the path of ‘continuing as things are’ emerge particularly clearly when it comes to dissent, conflict and resistance. In the energy, transport or agricultural transition, in debates about the right to the city or resistance against (control over) infrastructures or property investments, different ideas emerge about futures and development paths. Just by taking a glance at the petitions for referendums that have been submitted in Berlin in recent years and at the referendums that have taken place, one can see how controversial almost all areas of the provision of public services are: water, energy, rent/housing and mobility/bicycles were and are situated in the public discourse and have been politicised by these initiatives. The referendum about the remunicipalisation of Berlin’s energy networks may serve as a good example of this, because without the initiative for a referendum, the topic and thus the possibility of changing the previous development path would probably have remained invisible and undiscussed. However, the great transformation is not directionless, but rather – despite all the indeterminacy of the perspective being aimed at – directed towards a sustainable future. After all, the discussion is not about whether a transformation (in the sense of change) is taking place, but rather ‘in which direction and under what kind of logic and rationales’ (Brand 2016: 25). The spatial sciences should therefore study these discussions, resistances and conflicts carefully and examine previously unquestioned orthodoxies.

With the question of who is involved in the development of future ideas and the specific shaping of them, we will briefly address the aspect of participation – a topic which has unlimited relevance in the spatial sciences and planning practice. The socio-ecological transformation, which was described at the start as a normative project, would be well advised to think more critically about participation – which is usually reinforced by the argument of the co-production of knowledge – than is sometimes the case. Transformation, understood as an intended system change, will not be able to be characterised by win-win situations and broad acceptance – at least not if the basic relationships between nature and society are to be rethought and reshaped. Within critical governance and transformation research in the spatial sciences, this orthodoxy should also be questioned, as has already been noted by Ullrich Brand, since it is still the case that: ‘Most contributions argue for a transformation that is widely accepted, inclusive and legitimate, which should occur through well-informed and transparent decision-making’ (Brand 2016: 24). In this sense, participation would be more likely to have the role of addressing transformation as an emancipatory project (cf. Penderis 2012; Brand 2016).

Within this framework, it is also important to take a critical look at newer participatory, transdisciplinary instruments and approaches – including, for example, real laboratories. It is precisely in hyperdiverse urban boroughs (Tasan-Kok/van Kempen/Mike et al. 2014) that such quasi-formal formats are characterised more by processes of exclusion and only address a fraction of the population. From a methodological point of view, this entails enormous problems if the intended aim is collective knowledge production and its results are to be subsequently translated into specific tasks related to shaping change.

5 Conclusions

If the Anthropocene is understood as a gift from earth system scientists to academia, and therefore also to the spatial sciences, we should thank them in the form of research contributions which cultivate a reflexive approach to supposedly universal knowledge and orthodoxies. The concept of the Anthropocene may initially be interpreted only as a semantic shift, and possibly also as a further depoliticisation, which blurs the view of the structural obstacles to the great transformation and the possibilities for shaping it, but at the same time it is also an encouragement to participate in these discussions more actively than before in order to generate an equally powerful counter-discourse. (O'Brien 2012). In this sense, the discourse seems to me to be immensely useful for one's own positioning and reflection on this.

I would like to end this article with the quotation with which I also ended the presentation on which it is based:

'The [...] understanding of the world is much broader than the Western understanding of the world. This means that the transformation of the world, and the transitions to the pluriverse [...] might happen (indeed, are happening) along pathways that might be unthinkable from the perspective of Eurocentric theories'
(Escobar 2016: 16).

6 Acknowledgements

The present article is the written version of a presentation given in June 2018 at the TRUST Doctoral Colloquium. I pointed out in the introduction to that presentation that research is not only a reflexive but also a dialogical process. For this reason, I made reference to esteemed colleagues with whom I have discussed the Anthropocene, space and transformation: I presented a few preliminary thoughts with Markus Hesse at the Dortmund planning conference on the great transformation. I presented an explicitly decolonial perspective on the promise of the transformative power of cities with Jennifer Gerend (Bruns/Gerend 2018) and discussed this intensively with my entire working group at the Summer University on Decolonizing Urbanism. Finally, I adopted the notion and formulation of 'critically going against the grain' from Daniela Gottschlich, whose research greatly inspires me.

References

- Bauriedl, S. (2015): Eurozentrische Weltbürgerbewegung. Zum WBGU-Sondergutachten Klimaschutz als Weltbürgerbewegung. In: GAIA – Ecological Perspectives for Science and Society 24 (1), 13-16.
- Biermann, F.; Abbott, K.; Andresen, S.; Bäckstrand, K.; Bernstein, S.; Betsill, M.M.; Bulkeley, H.; Cashore, B.; Clapp, J.; Folke, C. (2012): Navigating the Anthropocene: improving earth system governance. In: Science 335 (6074), 1306-1307.
- Brand, U. (2016): 'Transformation' as a New Critical Orthodoxy. The Strategic Use of the Term 'Transformation' Does Not Prevent Multiple Crises. In: GAIA – Ecological Perspectives for Science and Society 25 (1), 23-27.

- Braun, B. (2009): Nature. In: Castree, N.; Demeritt, D.; Liverman, D.; Rhoads, B. (Eds.): *A Companion to Environmental Geography*. Malden/Oxford, 19-36.
- Bröckling, U.; Feustel, R. (2010): *Das Politische denken. Zeitgenössische Positionen*. Bielefeld.
- Brondizio, E.S.; O'Brien, K.; Bai, X.; Biermann, F.; Steffen, W.; Berkhout, F.; Cudennec, Chr.; Lemos, M.C.; Wolfe, A.; Palma-Oliveira, J.; Chen, Ch.-T.A. (2015): Re-conceptualizing the Anthropocene: A call for collaboration. In: *Global Environmental Change* 39, 318-327.
- Bruns, A.; Gerend, J. (2018): In Search of a Decolonial Urban Transformation. In: *GAIA – Ecological Perspectives for Science and Society* 27 (3), 293-297.
- Castree, N. (2015): Changing the Anthro(s)cene. Geographers, global environmental change and the politics of knowledge. In: *Dialogues in Human Geography* 5 (3), 301-316.
- Chakrabarty, D. (2009): *Provincializing Europe: Postcolonial Thought and Historical Difference*. New Edition. Princeton, NJ.
- Crutzen, P.J. (2002): Geology of mankind. In: *Nature* 415 (6867), 23.
- Dearing, J.A.; Wang, R.; Zhang, K.; Dyke, J.G.; Haberl, H.; Hossain, M.S.; Langdon, P.G.; Lenton, T.M.; Raworth, K.; Brown, S.; Carstensen, J.; Cole, M.J.; Cornell, S.E.; Dawson, T.P.; Doncaster, C.P.; Eigenbrod, F.; Flörke, M.; Jeffers, E.; Mackay, A.W.; Nykvist, B.; Poppy, G.M. (2014): Safe and just operating spaces for regional social-ecological systems. In: *Global Environmental Change* (28), 227-238.
- Descola, P. (2013): *Jenseits von Natur und Kultur*. Berlin.
- Dietz, K. (2018): Researching Inequalities from a Socio-ecological Perspective. In: Jelin, E.; Motta, R.; Costa, S. (Eds.): *Global entangled inequalities. Conceptual debates and evidence from Latin America*. London/New York, 76-92.
- Escobar, A. (2016): Thinking-feeling with the Earth: Territorial Struggles and the Ontological Dimension of the Epistemologies of the South. In: *AIBR, Revista de Antropología Iberoamericana* 11 (1), 11-32.
- Gebhardt, H. (2016): Das 'Anthropozän' – zur Konjunktur eines Begriffs. In: *Heidelberger Jahrbücher Online* 1, 28-42.
- Görg, C.; Brand, U.; Haberl, H.; Hummel, D.; Jahn, T.; Liehr, S. (2017): Challenges for Social-Ecological Transformations: Contributions from Social and Political Ecology. In: *Sustainability* 9 (7), 1-21.
- Ha, N. (2014): Perspektiven urbaner Dekolonisierung. Die europäische Stadt als 'Contact Zone'. In: *sub|urban. zeitschrift für kritische stadtforschung* 2 (1), 27-48.
- Helbig, M.; Jähnen, S. (2018): Wie brüchig ist die soziale Architektur unserer Städte? Berlin. = WZB Discussion Paper P 2018-001.
- Jahn, T. (2008): Transdisziplinarität in der Forschungspraxis. In: Bergmann, M.; Schramm, E. (Eds.): *Transdisziplinäre Forschung. Integrative Forschungsprozesse verstehen und bewerten*. New York/ Frankfurt am Main, 21-37.
- Jahn, T.; Hummel, D.; Schramm, E. (2015): Nachhaltige Wissenschaft im Anthropozän. In: *GAIA – Ecological Perspectives for Science and Society* 24 (2), 92-95.
- Kersten, J. (2014): Das Anthropozän-Konzept. Kontrakt – Komposition – Konflikt. Baden-Baden.
- Latour, B. (2014a): *Anthropology at the Time of the Anthropocene – a personal view of what is to be studied*. Distinguished Lecture. Washington.
- Latour, B. (2014b): Agency at the Time of the Anthropocene. In: *New Literary History* 45 (1), 1-18.
- Lawhon, M.; Ernstson, H.; Silver, J. (2014): Provincializing Urban Political Ecology: Towards a Situated UPE Through African Urbanism. In: *Antipode* 46 (2), 497-516.
- Manemann, J. (2014): *Kritik des Anthropozäns. Plädoyer für eine neue Humanökologie*. Berlin/ Bielefeld.
- Morrison, K. (2015): Provincializing the Anthropocene. In: *Seminar* (673), 75-80.
- O'Brien, K. (2012): Global environmental change II. In: *Progress in Human Geography* 36 (5), 667-676.
- Penderis, S. (2012). Theorizing participation: from tyranny to emancipation. In: *Journal of African and Asian Local Government Studies* 1 (3), 1-28.
- Raworth, K. (2012): *A Safe and Just Space for Humanity: Can we live within the doughnut?* = Oxfam Discussion Papers.
- Rockström, J.; Steffen, W.; Noone, K.; Persson, Å.; Chapin III, F.S.; Lambin, E.; Lenton, T.M.; Scheffer, M.; Folke, C.; Schellnhuber, H.; Nykvist, B.; De Wit, C.A.; Hughes, T.; van der Leeuw, S.; Rodhe, H.; Sörlin, S.; Snyder, P.K.; Costanza, R.; Svedin, U.; Falkenmark, M.; Karlberg, L.; Corell, R.W.; Fabry, V.J.; Hansen, J.; Walker, B.H.; Liverman, D.; Richardson, K.; Crutzen, C.; Foley, J. (2009): A safe operating space for humanity. In: *Nature* 30 (461), 472-475.
- Schneidewind, U. (2014): *Urbane Reallabore – ein Blick in die aktuelle Forschungswerkstatt*. In: *pnd online* (III), 2-7.

- Schneidewind, U.; Augenstein, K. (2016): Three Schools of Transformation Thinking. In: GAIA – Ecological Perspectives for Science and Society 25 (2), 88-93.
- Steffen, W.; Crutzen, P.J.; McNeill, J.R. (2007): The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature. In: AMBIO: A Journal of the Human Environment 36 (8), 614-621.
- Steffen, W.; Richardson, K.; Rockström, J.; Cornell, S.E.; Fetzer, I.; Bennett, E.M.; Biggs, R.; Carpenter, S.R.; Vries, W. de; Wit, C.A. de (2015): Planetary boundaries: Guiding human development on a changing planet. In: Science 347 (6223), 1-8.
- Tasan-Kok, T.; van Kempen, R.; Raco, M.; Bolt, G. (2014): Towards Hyper-Diversified European Cities: A Critical Literature Review. Utrecht.
- UNESCO (2013): World Social Science Report 2013. Changing Global Environments. Paris.
- UNESCO (2016): Challenging inequalities. Pathways to a just world. Paris.
- WBGU – German Advisory Council on Global Change (2011): World in Transition. A Social Contract for Sustainability. Berlin.

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