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## The politics of sustainability transitions

FLOR AVELINO, JOHN GRIN, BONNO PEL & SHIVANT JHAGROE

### Introduction: what is transition politics?

Sustainability transitions are processes of fundamental social change in response to societal challenges (Grin, Rotmans, & Schot, 2010; Markard, Raven, & Truffer, 2012). They reflect a particular diagnosis of persistent social problems, in which persistence is attributed to the path dependency of dominant practices and structures (i.e. 'regimes'), whose resolution requires structural and long-term change. By their nature, transitions involve politics in the broadest sense of the word, that is, as

all the activities of co-operation and conflict, within and between societies, whereby the human species goes about organising the use, production and distribution of human, natural and other resources in the production and reproduction of its biological and social life. (Leftwich, 1983/2010, p. 11)

Not surprisingly, there is already a substantial body of literature on the politics of transitions (e.g. Avelino, 2009; Fuenfschilling & Truffer, 2014; Grin et al., 2010; Geels, 2014; Hess, 2014; Hoffman, 2013; Jhagroe, 2016; Kern, 2011; Paredis, 2013; Späth & Rohrer, 2010; Voß, Smith, & Grin, 2009). This has been stimulated by a previous Special Issue of this Journal (Newig, Voß, & Monstadt, 2007) and various calls for the need to pay more attention to politics and issues of legitimisation in transitions (e.g. Berkhout, Smith, & Stirling, 2004; Hendriks & Grin, 2007; Hendriks, 2009; Meadowcroft, 2009; Shove & Walker, 2007, 2008; Smith & Stirling, 2007; Smith & Stirling, 2010; Walker & Shove, 2007). Nevertheless, it is still argued that transitions literature 'has fallen short in its understanding of power' and that 'the conceptualisation of power and politics, and their relations with questions of knowledge and social justice, require further elaboration' (Scoones, Leach, & Newell, 2015, pp. 3–5). These critiques sit within a broader debate on the politics of sustainable development (e.g. Meadowcroft, 2007; Scrase & Smith, 2009; Swyngedouw, 2010), particularly the tensions between democratic governance and the radical steps deemed necessary for sustainable development (Blühdorn, 2013; Langhelle, 2000; Røpke, 2012; Stirling, 2011). It seems that recurring calls for an increased attention to the politics of sustainability transitions have failed to consolidate, remain relatively dispersed and lack in systematic comparison of otherwise rich case studies.

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This Special Issue reasserts the conviction that the politics of transitions warrants more attention and better integration in transition studies and the papers included here cast light on this from a range of fields, including environmental governance, post-structuralist theories, political science, policy studies, science and technology studies, practice theory, political geography and development studies. This disciplinary diversity reflects the wide-ranging and multi-dimensional nature of transitions, anchored in the concept of politics typified by Leftwich (above).

The contributions in this Special Issue offer some important contributions to this debate. Chilvers and Longhurst (2016) discuss what it means to ‘participate’ in energy transitions, proposing to reconceive public engagements from a relational and co-productionist perspective. Hoffman and Loeber (2015) explore the micro-politics of transitions from a practice perspective, using innovation of greenhouse technology in the Netherlands as a case-study. Moving beyond the ‘niche–regime dichotomy’, they show how innovative practices and vested interests are typically constituted in a dialectic manner and tend to incite processes of change in both. In a similar tradition, Pel (2015) invokes the metaphor of ‘Trojan Horses’ to propose a dialectical perspective on innovation ‘capture’ as observed in Dutch traffic management. Castán Broto (2015) introduces the notion of ‘political technology’ – drawing on Foucauldian scholarship – to address the spatial politics of socio-technical innovations and ‘innovation territories’ in energy and water in Spain (1939–1975). Kenis, Bono, and Mathijs (2016) seek to unravel the (post-)political in transition management, drawing on insights from critical political theorists (e.g. Mouffe, 2006; Swyngedouw, 2010; Žižek, 2000) to highlight how conflict and contestation is suppressed. Avelino and Wittmayer (2015) build on institutional theory to develop a multi-actor perspective to conceptualise shifting power relations in sustainability transitions. Swilling, Musango and Wakeford (2015) take up the essential question of the relationship between development and environmental objectives when thinking about transitions in the Global South, focusing on the prospects of a just transition in South Africa. Gaede and Meadowcroft (2015) review the International Energy Agency’s World Energy Outlook, 1998–2008, in order to help explain the relations between status quo politics, futures and transitions.

While each paper provides a detailed contribution to the diverse and complex inter-dependency of politics and transition, here we seek to explore what the papers collectively tell us about two key questions: *What can transition research learn from other fields of research for analysing the politics of sustainable development and radical change? And, how can these insights be integrated in the field of transition theory and its main concepts?* We discuss and synthesise the insights of these articles across three cross-cutting themes, each touching on one dimension of Leftwich’ definition of politics: the *materialities* of transition politics, the *dispersed nature of agency and power* and the importance of *historical and spatial* contexts. Finally, we draw out the main insights and answer our research questions in a concluding synthesis.

### **Materialities of transition politics**

Entanglements of ‘the social’ and ‘the material’ lie at the heart of transition research. Most concepts that address socio-technical and sustainability transitions accentuate how social processes co-evolve with technical, infrastructural and ecological systems. Informed by Science and Technology Studies (Geels, 2002, 2005; Rip & Kemp, 1998) and Complex Systems Theory (Loorbach, 2010; Rotmans & Loorbach, 2009), underlying transition ontologies suggest that transition processes and prac-

tices involve socio-human realities as well as technical tools and artefacts. However, some of the contributions in this issue suggest that transition research sometimes adopts a shallow relational ontology of 'the social' and 'the material', without explicitly accounting for 'the political'. Political agency seems to be attributed only to political institutions and social actors rather than to material practices. This resonates with wider discussions on the co-production of science and social order (Jasanoff, 2004), *Dingpolitik* and *Res Publica* (Latour, 2005), the 'power of things' (Bennett, 2009) and 'material participation' (Marres, 2012), as well as debates within transition research on the 'politics of things' (Hendriks, 2009) and the 'politics of materiality' (Vellema, 2011). These all suggest that transition research can no longer afford to have a Cartesian bias in its political ontology. Leading from this, two different foci of material transition politics are addressed in this Special Issue.

First, the politics of materiality is located at the *interface between governing regimes and practices on the one hand, and socio-material arrangements on the other hand*. For example, Castán Broto (2015) argues that socio-technical regimes and institutional power merge and unfold via 'political technologies'. Using Spain's energy transition in the mid-twentieth century as a case, she illustrates how new hydraulic works and reservoirs of water co-create new governing arrangements. Similarly, Chilvers and Longhurst (2016) argue that subjects, objects and procedures together 'perform' participatory collectives. Linking transition theories with Science and Technology Studies on participation, they explore the co-production of diverse forms of public participation and exclusions in the UK low-carbon energy transitions.

Second, the politics of materiality is located at *dispersed geographies and everyday social practices*. A number of contributions argue for a more spatialised understanding of transition politics, power dynamics and resistance. In their contribution, Hoffman and Loeber (2015) use a practice approach to draw attention to the ways in which everyday actions are de- and re-routinised through the reconfiguration of specific material objects. They illustrate how 'micro-politics' cultivate creativity in the relation between the artefact (in their case: a greenhouse) and its contexts (here framed by Dutch farming, research, policy-making and environmental activism), in which the artefact gains meaning. This is also echoed by Castán Broto (2015), who argues that socio-technical regimes of power are spatially dispersed, where territories are strategic means to problematise and re-imagine society and infrastructure, such as wind farms or hydropower plants, and act as spaces of innovation that contribute to new forms of governance.

These contributions challenge a socio-material ontology devoid of power and politics. Alternatively, exploring a 'politico-material ontology' of sustainability transitions, these papers highlight how power regimes, technologies and participation reframe current research into transition politics. By exploring new points of contact between the socio-technical (or socio-material) and the political, a new transition political sensibility and discourse emerges. This does not only involve empirical case studies of transitions 'out there' (e.g. on renewable energy, smart cities and bio-technology), but also a more engaged scholarship that calls into question socio-material inequalities and exclusions.

### Locating dispersed agency and power

Understanding the politics of transitions also involves *locating* the sources and agents of power in broad transition processes. A recurring argument in this

issue revolves around the *dispersed nature of power and agency*. By conceptualising relational, dispositional and structural power (Hoffman & Loeber (2015) – cf. Grin et al., 2010, Arts & Tatenhove, 2005; Clegg, 1989) or innovative, transformative and constitutive power (Avelino & Wittmayer, 2015 – cf. Avelino & Rotmans, 2009), it becomes clear that power in transition processes is not concentrated at a particular level (e.g. ‘niche’ or ‘regime’) or within specific actors, but that different dimensions of power are dispersed across interrelated agents at numerous levels.

Several contributions are based on relational approaches such as Practice Theory and Actor-Network Theory (Hoffmann & Loeber, 2015; Chilvers & Longhurst, 2016; Pel, 2015). These approaches challenge prevailing individualistic notions of agency and emphasise the materially embedded and distributed nature of transitions. This implies that the ways in which actors engage with transition politics are co-produced through socio-material procedures, entanglements with infrastructures (Chilvers & Longhurst, 2016), routines and material practices (Hoffman & Loeber) and institutional logics (Avelino & Wittmayer, 2015). They also locate power and agency in the performativity of future visions (Gaede & Meadowcroft, 2015), spatial territories (Castán Broto, 2015), national identities (Castán Broto, 2015; Swilling et al., 2015) and discourses and knowledge (cf. Voß, 2014). Avelino and Wittmayer’s (2015) paper discusses how networked power and agency are dispersed across different actor roles, which are framed and contested across different institutional logics (e.g. ‘state’, ‘market’, ‘community’ and ‘third sector’).

Related to the dispersed nature of power and agency, several articles seek to *reconsider and specify the dichotomy between niches and regimes*. In the multi-level perspective (Geels, 2005, 2010), institutional power is generally assumed to be centred in the ‘regime’ and agency for change is primarily attributed to ‘niches’ in response to landscape developments. Niche–regime interaction is often then conceptualised in a dichotomous manner through a ‘David and Goliath’ metaphor, juxtaposing small and agile with big and strong. One way in which authors in this Special Issue challenge this niche–regime dichotomy is by unpacking and specifying the notion of ‘regime’. Instead of conceiving a regime as a socio-technical system, they theorise it as a socio-political constellation embedded in economic structures (Swilling et al., 2015) or as a Foucauldian political technology in the construction of particular spaces (Castán Broto, 2015). It is argued that socio-political regimes need to be confronted before socio-technical systems can be changed (Swilling et al., 2015). This also suggests a need for a more fine-grained conception of the niche–regime relationship, highlighting multi-actor arenas in which the politics of transitions are played out. Refined ‘intermediate entities’ are brought forward to describe the zones in which transformative novelty is institutionalised and contested, such as Bourdieusian ‘fields’ (Hoffman & Loeber, 2015), ‘ecologies of participation’ (Chilvers & Longhurst, 2016) and ‘institutional contexts’ (Avelino & Wittmayer, 2015). These entities, similar to notions of ‘arenas of development’ (Jørgensen, 2012) and ‘process systems’ (Pel, 2012), can challenge the prevailing notion that novelty lies solely within deviant spaces of innovation. This highlights how creativity might also emerge from mainstream practices or from the renewal of existing institutions (Hoffman & Loeber, 2015; Pel, 2015). They also sensitise different institutional logics in both reproducing institutions as well as creating new ones (Avelino & Wittmayer, 2015). Such insights underline the need to avoid overly schematic analyses in which business and government actors are attributed to the ‘regime’ and civil society is equated with ‘niche’ agency.

Drawing on relational modes of inquiry allows the alignment of politics with the process-theoretical character of transitions theory (cf. Pel, Avelino, & Jhagroe, *in press*) and facilitates a better understanding of the evolution and instability of actors and entities. The comparison of translation processes by Pel (2015) highlights the unstable nature of innovation and shows how these can evolve along with the networks of actors who seek to promote innovation in accordance with their political ambitions. Chilvers and Longhurst (2016) deploy a co-productionist framework to challenge common assumptions about the identities and roles of the public in transitions. Their comparative case studies show how participative identities evolve through participation processes, in which objects, subjects and procedures mutually constitute each other. Transition ‘frontrunners’, ‘innovation adopters’ and ‘deliberative procedures’ are thus shown to be in a constant state of becoming. Similarly, Hoffman and Loeber (2015) elicit how the identities of innovation instigator, receiver, witness or broker are constructed over time. These constructions of innovative identities are important issues for the politics of transitions, as they shape the positioning of actors as competent experts to be believed, as ‘niche’ initiators to be supported, or as entrepreneurs to be acknowledged as inventors or patent holders.

Finally, the distributed agency perspectives involves a particular attentiveness to *the politics of conflict and capture*, with some papers explicitly re-enforcing concerns about the ‘dangers’ of capture by vested interests (Kenis et al., 2016; Gaede & Meadowcroft, 2015). Drawing on critiques of ‘post-political’ ideology, Kenis et al. (2016) emphasise the constitutive role of conflict and contestation by interrogating aspects of transition management that seem vulnerable, such as the focus on deliberative consensus coordination and managerialism. Gaede and Meadowcroft (2015) also warn how visions of alternative futures are prone to be ‘captured’ by vested interests. Often produced within ‘regime’ structures, visions may provide guidance to transformative efforts, but they are likely to reflect basic assumptions of the status quo.

However, the relational, process-oriented focus on distributed agency also guards against simplistic notions of ‘capture’. While capture is often seen as a transition ‘failure’, the papers building on relational approaches propose a more dialectic understanding. Pel (2015) challenges the negative preoccupation with capture by using the metaphor of ‘Trojan Horses’, demonstrating how attempts at system innovation may actually be *meant* to be ‘captured’ or translated, and how innovation breakthroughs can be seen as only moments in ongoing and deeply contested processes. Hoffman and Loeber (2015) similarly invoke practice theory to elicit the dialectics between innovative practices and vested interests, highlighting how the creativity involved in regime consolidation is often overlooked. Elements of such dialectical kind of process theory can also be found in Shove and Walker (2007), Smith (2007), Shove (2012) and Smith and Raven (2012). A key insight for transition theory is then that niche–regime interaction can be understood as a dialectic process of innovation, capture and translation, in which niches and regimes are equally involved.

### Contextualising political processes

An acknowledgment of the situated nature of transition politics requires a deeper knowledge of the historical and spatial contexts in which transition political processes unfold. In the political processes that contribute to transitions, situated enti-

ties are subject to multiple interactions and can change identity over time. Swilling et al. (2015) highlight the role of spatial and historical context (in this case post-apartheid South Africa) and the way in which this has been shaped by natural resources. Castán Broto (2015) contextualises her case in (post-) Franco Spain set against a landscape influenced by the earlier transition to a modern energy system. Both articles discuss the role of the state in transitions by situating their case and draw different conclusions to show how 'context matters'.

A central concern of Swilling et al. (2015) is how transitions can achieve both socio-economic development and ecological goals or what they call a 'just transition'. Classical literature from development studies, such as Leftwich (1995), argues that for modernisation to occur, a strong state is a key pre-requisite. Committed development elites are necessary, embedded in strong public institutions and the state should have a 'relative autonomy' from major capitalist economic interests. Swilling et al. (2015) investigate whether this also holds in the South African context by introducing Wilson's (2000) concept of policy regime, comprising institutional and discursive structures, day-to-day policy practices and the power relations implied in this ensemble. They show that South Africa's policy regime is dominated by the 'mineral-energy complex', which has emerged around the country's mineral and fossil resources and provides few opportunities for a just transition. Swilling et al. (2015) argue that South Africa has been unable to transform into a 'post-extractivist' regime (as experienced by some Latin American countries) because of the strong influence of the country's historical development, which in recent decades has been primarily preoccupied with the post-apartheid 'new racial nationalism' agenda and less with what the authors term a 'non-MEC employment-creating "developmental welfarism"'. This lack of a strong state that would be oriented towards a just transition is currently making a sustainable energy transition unlikely, in contrast to transitions in some parts of Asia, where stronger states promote transitions (e.g. Berkhout, Angel, & Wieczorek, 2009).

However, plausible and important strong public institutions may be for socially, economically and ecologically sound development, Castán Broto's (2015) analysis suggests that a strong state may influence transition in other ways. Drawing on the example of Spain, she shows how an incumbent, centralised energy regime that replaced an earlier, small-scale generation based system was developed through a strong state. This regime, guided by the Franco government's vision of 'modernity, technology and nationalism', also served to discipline peasants and labourers to take up their role in nation building and state formation. It comprised 'political technologies' (a contextualising Foucauldian perspective) such as innovation territories, and shaped to support hydropower, to buttress state formation and to enrol citizens in the enterprise. Such technologies enabled what Foucault has called 'the conduct of conduct', the shaping of subjectivities in what Haugaard (2012) has termed the 'fourth dimension of power'. This finding should not come as a surprise. It illustrates previous points made by Scott (1998), who highlighted that the modernist faith in progress, particularly a control of nature and society based on science and technology, can promote regimes with oppressive features, especially when civil society is historically weak. Castán Broto's (2015) shows how this has led to an institutional path dependency that still constrains particular pathways for a sustainability transition, as particular actors are excluded from relevant networks.

Collectively, the papers in this issue therefore emphasise how context matters for transition politics. Furthermore, they show how a better understanding of the

co-evolution of state capacity, its substantive vision and the translation of that vision into material and spatial structures is an urgent matter for further, methodologically historicist (Bevir & Rhodes, 2010) research on transition trajectories (De Haan & Rotmans, 2011; Rotmans & Loorbach, 2010) or pathways (Geels & Schot, 2007). Insights from such research can play an important role in informing problem definition, visioning and strategy development.

### **Conclusion and synthesis: understanding and influencing transition politics**

In conclusion, we can agree that sustainability transitions are inherently political, and as encompassing, long-term processes of multiple changes in socio-technical systems, they require broad understandings of the political. The articles in this Special Issue explore transitions in a variety of perspectives, including contemporary governance shifts and critiques of post-political tendencies that obscure conflicts and inequalities implied by transitions processes. They provide rich empirical descriptions as well as fresh insights from various intellectual traditions and disciplines. However, as acknowledged above, there is a crucial challenge in moving beyond fragmented interventions towards a consolidation of how we embed transitions politics into transition studies. This has a range of implications for theorising the two core issues of transition theory: understanding transition dynamics and understanding how to intervene in such dynamics.

#### *Re-framing transition dynamics*

The papers in this issue share what we call a 'broad understanding of politics', entailing more than formalised democratic processes or geo-political struggles. Several contributions highlight the overlooked 'micro-politics' of transition processes (Pel, 2015; Chilvers & Longhurst, 2016; Avelino & Wittmayer, 2015; Hoffman & Loeber, 2015). Transition politics articulates itself when futures are envisioned (Gaede & Meadowcroft, 2015; Hoffman & Loeber, 2015), spaces are visualised (Castán Broto, 2015), economic paradigms are reproduced (Kenis et al., 2016; Swilling et al., 2015), novelities are captured (Pel, 2015), participation procedures take shape (Chilvers & Longhurst, 2016), and actor roles are framed (Avelino & Wittmayer, 2015). These insights transcend 'add-ons' from political science to transitions studies, rather they substantiate how 'the political' in transitions is so complex that it requires a multitude of analytical lenses in and adjacent to the field of transition studies.

The Special Issue also makes important proposals for refining transitions ontologies. Practice Theory and other relational approaches offer notions such as 'fields' (Hoffman & Loeber, 2015), 'ecologies of participation' (Chilvers & Longhurst, 2016) and 'Trojan Horses' (Pel, 2015) as perspectives through which to grasp the niches-regime interactions in a more dynamic and fine-grained way. Institutional theory helps specify the role of different actors in different institutional logics, thus helping to articulate the socio-political changes implied in the multi-level perspective (Avelino & Wittmayer, 2015). Similarly, development studies (Swilling et al., 2015) suggest a value in recasting 'socio-technical' regimes as 'socio-political' regimes. Critical geography yields the Foucauldian notions of 'political technologies' and 'innovation territories' to analyse how the politics of space-making, geographic boundaries and national identities are intertwined with the development of specific technologies (Castán Broto, 2015). Finally, Kenis et al. (2016) show how critical-theoretical accounts of post-political ideology may provide yet another ordering

of political reality that re-organises the conventional view of socio-technical regimes as the key structures driving societal development.

### *Reframing governance and agency in transitions*

Overall, the featured contributions are generally less outspoken about the issue of governance intervention in transitions, given the highly political nature of any form of agency. Nevertheless, the broadening of how we understand ‘the political’ has immediate practical implications. To start with, the strategic planning for transforming regimes crucially requires awareness of how the historical, political and spatial contexts of socio-technical regimes matter (Castán Broto, 2015; Swilling et al., 2015). The power-laden nature of international energy future visioning processes (Gaede & Meadowcroft, 2015) implies important lessons for inclusive yet strategic transition visioning processes. The concepts of the ‘ecologies of participation’ (Chilvers & Longhurst, 2016) and the multi-actor perspective (Avelino & Wittmayer, 2015) can inform identification and engagement of societal actors that is systemically tailored to the particular complexities of transitions processes. Another prominent concept is *material* participation, which helps specify how the politics of socio-technical transitions extends beyond the decision arenas of formal politics, into less visible activities such as greenhouse construction (Hoffman & Loeber, 2015), smart meter installation (Chilvers & Longhurst, 2016) and road management (Pel, 2015).

Furthermore, the alternative, broadened conceptualisation of ‘the political’ contributes to a new repertoire of transition strategies and tactics that starts from the acknowledgement that regime ‘capture’ is endemic, inevitable and something to confront rather than to combat or deny. Dialectical perspectives remind transition champions to engage with the ongoing creativity implied with the ‘endogenous renewal’ of regimes (Hoffman & Loeber, 2015). From post-political theories (Kenis et al., 2016), we learn the importance of acknowledging, accepting and dealing with conflict and contestation. The Trojan Horse metaphor (Pel, 2015) summarises how the inevitable ‘capture’ can be desirable, if part of a longer term strategy.

We do not offer an agenda for the research into transition politics here. Neither do we want to repeat that we cannot afford to neglect politics and power, in case we should be ‘missing out on the most interesting opportunities’ to study and influence sustainability transitions (Grin et al., 2010, p. 236). This Special Issue has taken up the challenge to expand our understanding of the politics of sustainability transitions and it has highlighted disciplines and ontologies that could be central to this. The future agenda consists of deploying them, operationalising them and evaluating them.

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