Global Environmental Change 23 (2013) 1285–1295

Contents lists available at ScienceDirect

Global Environmental Change

journal homepage: www.elsevier.com/locate/gloenvcha

Cleantech clusters: Transformational assemblages for a just, green economy or just business as usual?

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ARTICLE INFO

Article history:
Received 26 November 2012
Received in revised form 13 June 2013
Accepted 13 July 2013

Keywords:
Cleantech
Green economy
Industrial clusters
Scale
Environmental governance
Assemblage

ABSTRACT

The rhetorical zeal for green enterprise as a global fix for the tripartite challenges of economic recession, environmental degradation and social inequality is increasingly visible in state and non-state pronouncements around the globe under the banner of 'The Green Economy'. In particular, many policy-facing statements call for transitions leading to a transformation in development practices. Yet there is little detail either in policy or research regarding the types of transitions needed and how they are to be initiated, nor agreement about what a transformed economy might look like. Despite this, there are emergent activities within the cleantech arena which are being heralded as actually existing examples of green economy activities. One means through which these activities are seeking to exert influence over development trajectories is by clustering both at the subnational and transnational level. While diverse in formation, many of these clusters are hybridised, involving actors from public, private and civil society sectors. Critiquing the efficacy of mainstream industrial cluster theory to analyse hybridised cleantech clustering, this paper presents a unique synthesis of current thought on multiscalar environmental governance and socio-spatial formations to explore the practices and potentialities of these hybridised cleantech clusters. Surveying the landscape of cleantech clustering and meta-clustering, before focusing in depth on one case study, the contribution of clustering to transitioning towards a transformed green economy is considered. Despite strong forces, both within and beyond cleantech clusters, for maintaining neoliberalised approaches to cleantech activity, it is concluded that for as long as cleantech clusters remain open and inclusive of actors proposing alternative pathways they do represent potential, albeit provisional, assemblages for transformation.

1. Introduction

The combined forces of global economic recession, humanly induced environmental change and stark social inequalities have led to international calls for a radical transformation of current development practices and transitions towards a 'green economy'. In 2008 UNEP, through its Green Economy Initiative, developed a working definition of a green economy as one which is low carbon, resource efficient and socially inclusive. This was further developed at the Rio +20 Earth Summit with the focus on a green economy in the context of sustainable development and poverty eradication (UNEP, 2011). However, as indicated in much of the post-Rio +20 analysis (e.g. Bigg, 2012; Brand, 2012), there are ongoing and intensely contested debates not only about what a green economy might look like, but also regarding how current practices could and should change in order to achieve social, economic and environmental goals (see Brockington, 2012; DeSombre, 2011; Levy, 2011; and Wapner, 2011). In parallel to these contestations, activities bundled together within the emergent 'cleantech' industrial sector are being heralded as actually existing exemplars of a green economy (Horwitch and Mulloth, 2010).

As with the green economy, cleantech does not have a precise or agreed definition, but is generally taken to refer to a 'diverse range of innovative products, services and solutions that optimize the use of finite and renewable natural resources for long-term commercial and environmental sustainability' (Ernst and Young, 2011, p. 6). Activities associated with cleantech have received significant support from both public and private investors to date, with growth in the sector increasing dramatically over the past decade. Although estimates vary, Ernst and Young (2012) suggest that it has grown by 220% since 2008 with around $243 billion being invested in 2010; a 30% increase from 2009. To date, the limited but expanding body of critical academic research has focused on the increasing capital investment in the sector and the rise of cleantech as 'an idea, a concept and an organising trope' (Caprotti, 2012, p. 371). Within this work, Caprotti argues that a dominant discursive conceptualisation of cleantech has been that

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http://dx.doi.org/10.1016/j.gloenvcha.2013.07.010

of technical and financial fix, which has 'done away with any radical or progressive characteristics previously associated with the 'green' movement, or with technologies initially seen as disruptive and containing the promises of social and environmental progress' (2012, p. 378). Such a conclusion, based primarily on discursive logics of particular actors is important, but does not consider the nuanced forms and diverse practices already evident, but currently under-studied, within the cleantech sector. In particular, Caprotti's analysis says little about the socio-spatial dimensions of cleantech sector development. More than simply mapping the location of cleantech enterprises globally, such spatialised analysis would pay attention to the diverse socio-spatial formations that comprise cleantech activities. Such formations are evident in inter-firm collaboration, open innovation and interactive platforms such as Skipso as well as in clusters and networks of clusters such as EcoClup, International Cleantech Network, the Global Cleantech Cluster Association. Exploring the form, function and practice of cleantech's material spatialities will create a more intricate account of the drivers and motivations as well as the politics and negotiated outcomes of cleantech activities. Certainly, such analysis is necessary to establish the extent to which cleantech-based activities might contribute to transformative changes within and beyond the economy. As Caprotti himself acknowledges, 'specific materialities around cleantech are being shaped as we speak' (Caprotti, 2012, p. 383). As one means to ground discursive logics in a more material analysis of cleantech practice, this paper initiates a new discussion about the role and potential of cleantech to contribute to radical transformation towards a just green economy. Specifically, it examines the socio-spatial phenomena of cleantech clusters and meta-clustering (that is the transnational clustering of cleantech clusters) that have been adopted within the cleantech sector as a means to further develop, design and deploy the sector's activities. The core question of the paper; to what extent does composite clustering around cleantech create possibilities for a radically transformed and more just global green economy?

In order to approach this question it is necessary to first establish what a radical green transformation of the global economy might entail. Related to this reconsideration is a distillation of critical insights from industrial clustering, innovation, socio-spatial theories and environmental governance analyses which inform the analytic exploration of whether cleantech clusters (and meta-clusters) provide significant sites where struggles over trajectories of development may be materially worked out. This is followed by a broad overview of cleantech clusters and the transnational clustering of clusters that comprise embryonic meta-clusters. Specifically, an empirical account of the socio-spatial processes of clustering that emerged through the formation of the first Irish cleantech cluster, An tSlí Ghlas or The Green Way, itself is a formative member of the Global Cleantech Cluster Association (GCCA). The narrative accounts produced through this empirical analysis depict diverse storylines, drivers and hopes for cleantech sector activity and the clustering that underpins it. Without doubt, there are enduring and influential discursive logics of neoliberal environmental governance (Caprotti, 2012; Castree, 2008), linked to relatively unreconstructed ecological modernist interpretations of win-win scenarios for the economy and the environment (Davies and Mullin, 2011), evident in the transitional economies of which the cleantech sector is a part. However, the research also identifies cleantech clusters as still open spaces for alternative voices and practices to engage and influence material developments undertaken in the name of the green economy. The extent to which such engagement will lead to radical transformation, will depend on the robustness of strategic alliances and on-going struggles for recognition amongst those seeking to progress social as well as economic and environmental transformation.

2. Transformation, transitions, justice and the green economy

The concepts of transition and transformation are used frequently, and often interchangeably, in the rhetoric associated with the need for, and movements towards, a greener economy. However, within analyses of green economy developments, transition is predominantly seen as 'a process of politically intentional control' (Brand, 2012, 121), while transformation is conceived more broadly as a 'comprehensive socio-economic, political and socio-cultural process of change which incorporates controls and strategies, but is not reducible to them' (Brand, 2012, 121). Transformation into a greener economy, in this sense, suggests a radical change that some argue will require a new 'global social contract' (WBGU, 2011, 276ff) supporting 'innovations for more sustainable use of resources' (UNEP, 2011, 51) often through a 'new technological revolution' (UNDESA, 2011, 5), but also requiring a 'global remodelling of economy and society towards sustainability'; a process that itself will depend on 'societal shaping and support' (WBGU, 2011, 6). However, these policy-facing documents rarely develop a detailed picture of the radically different contracts, innovations or technologies, nor how such radical changes will occur. Such opacity about the means and mechanisms of transition towards a greener economy have led to the expansion of more grounded coalitions, in particular between trade union movements and environmental non-governmental organisations (NGOs), keen to ensure that any such transitions will be fair and sustainable (Swelling and Annecke, 2012; Räthzel and Uzzell, 2013). Often presented under the banner of 'Just Transition', these coalitions support a movement towards a decarbonised world and recognise that this will reshape the way that socio-technical systems are configured. However, they also seek to avoid the chaotic transitions of the past, such as the shift away from manufacturing and extractive industries in the UK and elsewhere during the 20th century, which negatively affected (and continue to negatively affect in many cases) entire communities dependent on those industries for employment (TUC and Allen, 2008). In particular, Just Transition coalitions argue for the involvement of trade unions and workers in governmental discussions about proposed changes to support for particular industrial developments and for green skills training for working people to equip them for the requirements of a low carbon and resource efficient economy (Farrell, 2012). Ultimately, the thrust of much Just Transition campaigning argues for social justice and the fair distribution of costs as well as benefits that may occur during any movement to a green economy.

More conceptually, transitions theorists have produced analyses of past socio-technical configurations (specifically their emergence and evolution) in order to develop frameworks for outlining how future transitions towards sustainably might occur (Rip and Kemp, 1998). From these analyses a Multi-Level Perspective (MLP) has become prominent as a means to conceptualise how innovations might come to be adopted and applied (or not) in many contexts and collectively lead to a wider system transitions (Geels and Schot, 2007). The MLP approach provides a means of framing the interactions and co-evolutionary forces between micro, meso and macro level components of socio-technical systems. In brief, for discussion of MLP is covered extensively elsewhere (see Grin et al., 2010), the macro or landscape level comprises meta-trends relating to fundamental values and structures. The meso level meanwhile incorporates socio-technical regimes which consist of technological artefacts, markets, user practices, regulations, infrastructure, maintenance and cultural meanings (Elzen et al., 2004). The micro level, in contrast, is seen as consisting of multiple niches in which radical innovations in technology and organisation may take place. Within the MLP framework, pressures at the macro level such as global