

## Introduction: Agri-Environmental Governance as Assemblage

Jérémie Forney, Christopher Rosin and Hugh Campbell

### ***Originally published in:***

Forney Jérémie, Rosin Chris & Campbell Hugh (editors) (2018), *Agri-environmental Governance as an Assemblage: Multiplicity, Power, and Transformation*, Earthscan/Routledge: London/New York, Chapter 11, pp. 177-192

### Re-framing Agri-Environmental Governance

The environmental impacts of agricultural production have, since the late 1960s, elicited growing social concerns and increasing scholarly attention especially in regards to the ability to regulate practices in efforts to mitigate degradation. Explanations of the social dynamics associated with regulation – from compliance to open contestation – continue to grapple with the complexities of social response, often following emerging theoretical trends in the fields of rural sociology and geography. Early work looked to explain the adoption of more environmentally friendly technologies and methods, examining the processes through which information was communicated and successful practices were transferred between farmers. These perspectives provided insight to the importance of appropriate technologies (in terms of their accessibility to farmers of diverse financial, temporal and cultural characteristics) and well-functioning modes of demonstrating and communicating the benefits of practices, using the

individual decision to adopt as the dominant focus of analysis. The subsequent rise of critical political economic analyses highlighted the structural factors that impacted on the capacity to consider, let alone adopt, environmental practice that limited the productive achievements of conventional capitalist agriculture (for an influential critique of adoption invoking structural factors see Vanclay and Lawrence 1994). This focus on the power differentials among the participants of agricultural production and environmental regulation drew necessary attention to the broader social context within which management decisions were made; it did not, however, account for the persistent diversity of environmental practice nor the situations in which outcomes were not determined by expected power dynamics. Increasing attention is now being paid to theoretical approaches that better address the complexities inherent to the navigation of the often divergent pursuits of profitable production and environmental sustainability, both of which involve myriad participants within networks of production and consumption. In this context, the concept of assemblage has recently attracted the attention of social scientists who want to focus on the emergent and overdetermined nature of agri-environmental practices in agriculture.

In this collection, we want to follow the new and explorative vistas that an assemblage approach exposes for the understanding and analysis of the governance of environmental issues in agriculture and agri-food systems. To provide greater coherence to the diverse perspectives enabled by assemblage, we use “governance” as a conceptual shortcut to encompass a great diversity of practices led by a wide diversity of actors. Governance has gained much currency in a variety of contexts; but, as a result of this broad applicability, it has

become polysemic and a highly contested concept necessitating a concrete definition of its usage. Under the umbrella of governance, we include, for instance, a regulatory scheme resulting from a national policy, a certification process led by a big retailer and a participatory initiative developed by an NGO. We further employ agri-environmental governance (AEG) as a broad framing that encompasses the multiple actions, which aim to implement change in the food system and address environmental issues related to agricultural production. Beyond the original intention of any governance action, localised uses, specific networks and practical norms emerge in a process of interaction, translation and reinterpretation that we can call AEG practices (Forney 2016a). Consequently, AEG emerges through repeated interaction between diverse actors constituting an AEG assemblage. The key actors in such assemblages include humans – from policy makers to private certifiers, from supermarket boards to farmers' associations – and, equally relevant and active, non-humans – legal documents, metrological tools, soils, animals amongst others. These non-human actors are central to the agency of the assemblage, and not merely passive recipients of human action (e.g., Lewis et al. 2013; Rosin et al. 2017). Our framing of AEG thus implies an engagement with modes of social theorisation that advocate the integration of non-human actors (or actants) in the understanding of the social, as evident in assemblage thinking (e.g., Bennett 2009), as well as wider elaborations of Actor-Network Theory (e.g. Callon 1986; Latour 2005; Law and Hassard 1999; Whatmore 2013).

While scholarly interest in AEG has been consistent, the theoretical frameworks through which it has been approached have undergone significant change. Governance has been a point of interest for both post-structural scholars and those coming from Marxist and neo-Marxist

inflected political economy approaches (see Higgins and Lawrence 2005). An early focus was on the persistence of peasant and other smaller scale producers with more environmentally appropriate practices in agricultural sectors dominated by highly capitalised and more intensive production associated with environmental degradation. This perspective was augmented through the deployment of ideas of governance which provided an analysis of the power relations (from local to global scales) that structured responses to environmental conditions. One particularly influential framework in this tradition has been the association of AEG with the elaboration of neoliberal forms of governance under late-capitalism (e.g. Lockie and Higgins 2007; Guthman 2008; Higgins et al. 2014; Wolf and Bonnano 2014). Governance of agricultural environments, in these analyses, needs to be understood as an extension of wider market-based modes of economic and political management and a departure from *government*. Understanding AEG in terms of this latter alignment with neoliberal models of policy and market-based solutions to environmental challenges has provided the most dominant recent framework for work in this area.

The association between neoliberalism and market-led environmental governance has begun to fracture and re-assemble along a number of different levels and ontological framings. In some of this new work, focus has shifted to the nuances of neoliberal subjectivities and the structural and/or ontological challenge of alternative agriculture systems (e.g. Harris 2009; Rosin and Campbell 2009), or drawing on Foucauldian understandings of governmentality as a necessary companion to the operation of governance (see Agrawal 2005; Haggerty 2007). These approaches emphasise the potential of forms of agency within governance frameworks that

had previously been argued to be closed or fixed. Another compelling challenge came from Actor Network Theory and its recent variants: particularly the opening of critical analysis to broader and flatter sets of relations that recognise the active role of non-human participants. This has compelled, we argue, the need for equally open and more flexible ontologies in the analysis and politics of AEG (e.g. Le Heron et al. 2016). These ontologies share a focus on addressing the complexities of governing agriculture practices in the context of environmental sustainability.

This book arrives in the midst of this interesting transitional moment in the theoretical framing of AEG. Recognising the value of analyses grounded in the major tropes of neoliberalism and capitalism, it seeks to explain the ways in which new approaches are either augmenting and elaborating older frameworks in new and interesting ways, or creating entirely new ontological framings of AEG that require a distinct break with the past. We suggest that the theoretical devices of assemblage and territorialisation form the key terrain around which this exploration of new openings and closures can take place. Consider a global agri-food network within which convenience nutrition is a principle objective. What does it mean to acknowledge the relations between bacteria digesting nitrates in the soil, someone breakfasting with a high protein cereal bar on the way to work, and a government deciding to support new plantations for palm oil production? Do we readily detect those links that underlie a story of the development of a global industrial agri-food system that is familiar to existing critical ontologies? Are we convinced that such a framework addresses the whole of the story? Are not these three actors—bacteria, protein bar eater and government—situated within broader and more diverse

connections? In recognising a broader scope of explanation, we must also beware of the danger of aimlessly following the threads, lacking a defined endpoint and further losing ourselves in the deep entanglements of the relational processes that create our world. What is an appropriate and viable ontological approach to the assembly of elements, actors and unanswered questions that intertwine in the practice of AEG?

The concept of assemblage, and its partner concept territorialisation, provide a coherent framing for the ontological work of the book. Their roots lie in the work of Deleuze and Guattari, notably their theorisation of the individual and the multiple (Deleuze and Guattari 1988), and their emphasis on the relational and heterogeneous nature of the social is central to the modes of explanation used in the book.

Assemblage as a conceptual and theoretical framing has become more important in recent years, notably in the geographical and anthropological literature with some notable collections like Ong and Collier (2005) and the special issue of the journal *Area* in 2011 anchoring a new interest in Deleuze and Guattari in those disciplines. While it has been applied as an approach for better understanding the uneven and emergent nature of neoliberalism (Higgins and Larner 2017), it remains underexplored in the literature on sustainability (Palmer and Owens, 2015) and, by association, AEG. Some significant exceptions can be noted, however, starting with the work of Tania Li (2007) on forest management in Indonesia, which offers a well-structured analytic of assemblage. Interestingly, many applications of an assemblage framing happen in

the analysis and critique of governing actions. For example, Sullivan's (2010) work grapples with alliances, alignments and assemblages of discourses, actors and organisations in the emergence and consolidation of payments for ecosystem services. In a later working paper published by The Leverhulme Centre for the Study of Value, Sullivan (2014) develops this assemblage-oriented approach to policy consolidation that draws on Li's work and connects with other analyses of practices of assemblage and policy orchestrations in contemporary policy consolidation around market-based mechanisms. In the same series of Working Papers, Fredriksen develops a theoretical treatment of assemblage thinking in processes of value creation in environmental policy, through an exploration of the idea of distributed agency in assemblages involving human and non-human actors (Fredriksen, 2014). Taking another notable direction, the work done by New Zealand scholars under the banner of biological economies (see special issue of *New Zealand Geographer* 2013, no 69) uses assemblage to explore the role of research in *doing* assemblages (see Le Heron et al. 2016; Carolan 2016). This draws together a wider set of international perspectives – particularly around the way in which new research ontologies and objects emerge within an assemblage-inflected methodology (Lewis et al. 2013, 2017; Carolan 2016; Dwiartama et al. 2016; Linke 2016). In the specific context of AEG, work in New Zealand (Rosin et al. 2017; Rosin, Campbell and Reid 2016) elaborates the emergent nature of best practice audits under the influence of the metrics being audited. In addition to these contributions that engage explicitly with assemblage, work by other scholars develops very similar approaches, without naming them as such. As an example, Benabou (2014) traces in considerable detail the alignments and alliances of individuals and

organisations around the development of international voluntary biodiversity offsets in which payments are made for biodiversity ‘services’.

In this book collection, our objective is to document an emergent assemblage approach that engages with entities as comprised of multiple autonomous and heterogeneous elements assembling in an always moving set of relations. We argue that this concept provides a deeply insightful framing through which to examine AEG as an emergent social dynamic. This approach allows our contributors to both incorporate existing critical analysis, as well as open broader sets of relations, in the conceptualisation of social action. This said, our use of an assemblage framing is far from “territorialised” and still includes a large diversity of positionings that is reflected in the chapters of this collection, notably around the prioritization of actors, agents or processes.

### Assembling this Collection

This book brings together a group of social scientists who are engaged in the emergent ontologies that intersect with and contribute explanation to the complexities of AEG as a social process. Their contributions elaborate case studies situated in diverse geographical, cultural and social contexts, and draw inspiration from a variety of theoretical backgrounds. Beyond this diversity, there is a shared intention to propose alternative ways of understanding agricultural policies, certification schemes or participative projects, by looking more specifically at their role in the emergent collection of elements, actors and processes—in other words, assemblages—



around food production and the environment. Assemblage acts as our key locus of theoretical investigation and elaboration; although, as the following discussion makes clear, the idea of assemblage comprises a variety of intriguing approaches ranging from the reinterpretation of more conventional ideas of community and decision-making to more radical forms of performativity. Despite the variation in approach, all of the contributions capture something of a similar and wider theoretical moment: a general recognition of a ‘turn to ontology’ in fields of theoretical endeavour that previously relied on discourse, ideology and subjectivity to provide phenomenological purchase on social processes.

As a whole, therefore, the contributors to this collection challenge established framings (ontologies) that use tightly defined categories as a means to simplify real world complexity in order to improve understanding of social process. Whereas categories such as class, power, conventional/alternative, or neoliberal produce clearer images of ‘reality’ and impose some order to the chaos of everyday life, our intention in organising this book is to expose important absences and biases inherent to this simplification, reduction and exclusion with specific reference to AEG. Categories have constructed too many walls and oppositions that fail to adequately represent and explain both the complexity of the social processes involved and the enactive political projects that might animate them. Our response, in this collection, is to use the theoretical idea of assemblage to illuminate diverse pathways forward in the academic study of AEG. Assemblage has emerged as a common theoretical theme in multiple strands of recent work: some of which is seeking ways to render more elaborate the interaction between neoliberalism and AEG, other strands which see assemblage as comprising an alternative to

neoliberalism as a theoretical framing through the introduction of more ANT-inflected ontologies. Finally, there are those that see assemblage as a pathway from a more passive/analytical to an enactive/engaged style of scholarship.

It is this combination of theoretical and methodological/political experimentation that makes assemblage such a useful gateway to new discussions about AEG. This understanding that the current moment is a period of high innovation and change in the scholarship around AEG is born out in the origins of the book collection. In 2014, Jérémie Forney put together a successful proposal to *the Swiss National Science Foundation* and invited Chris Rosin and Hugh Campbell to join a conversation on new approaches to the theorisation of AEG. All three of us were grappling with the transition from ‘neoliberal’ to new theoretical framings of practice and action in agriculture and food worlds – particularly as influenced by theoretical ideas like assemblage and multiple ontologies being generated in agrifood studies. This small collaboration was clearly taking place alongside other similar clusterings and collaborations of like-minded scholars – particularly in Wales, elsewhere in New Zealand and Australia, and in the United States. As a group, we first gained a glimpse of the wider impetus for theoretical innovation in this space when we proposed a session on new theoretical approaches to AEG at the International Rural Sociology Association (IRSA) conference in Toronto in August, 2016. Most of the contributors to this volume responded to the (what we feared might be seen as eccentric and narrow) theoretical language in the call for papers and came to Toronto with a range of new insights and elaborations, derived from diverse study sites including Japan, Africa and South America. By the end of that conference, it was clear that we were experiencing

something of a break-out moment in the theorisation of AEG and this book collection was proposed.

The following chapters are indicative of the distinctive pathways that the various authors have taken to arrive at a consideration of assemblage as both ontologically disrupting and re-constituting the framing of AEG. Some have come from traditional consideration of rural economy and rural development and have been long attempting to reconcile economic and environmental pressures in specific spaces. For these chapters, the grounded challenges of environmental governance in particular rural spaces and regions are the foundation for a consideration of the reframing and ontologically disruptive power of assemblage thinking. Others come from the agri-food space and bring a consideration of the dynamics of food production, the practices and subjectivities of farmers and farming, the configuration and disruption of supply chains and consumption dynamics and the governance arrangements that extend through these economic networks. Others come directly from the world of environmental governance initiatives like carbon emissions trading and follow where these initiatives alight in specific rural spaces and are territorialised into rurally-embedded assemblages. A final group is more directly interested in the politics of assembling and the turn towards more enactive and performative approaches to environmental governance.

In these ways, our contributors have arrived at assemblage as a transformative re-working and re-framing of the challenges, dynamics and potentials of AEG. As a collection, they point to the

emergence of new ontological perspectives oriented around three central contributions. The first exposes the potential within an assemblage framing to articulate the complexity of things, by acknowledging and incorporating the multiplicity and emergence of assemblages. The second contribution highlights the political encounters that are central to this multiplicity. Assemblages are infused with relations of power, which are under persistent pressures of redefinition as their constituent elements engage in the work of de- and re-territorialisation. Finally, the third group extends beyond the analysis and critique of social processes, using assemblage as the foundation for novel ways of *doing* governance.

### Assembling Ontologies: Multiplicities and Agencies

As an initial step in moving beyond the usual categories applied to the analysis of AEG, the first set of contributions focuses on the diversity of elements that assemble around the initial focus of the research. In these chapters, assemblage follows the flows of relations and overflows – categories that seemed natural and obvious. Moreover, they represent assemblages as emergent, subject to de-territorialisation and re-territorialisation, thus participating in an ontology of multiplicities and future possibilities. Applied to the analysis of governance, these considerations resonate with the question of the actors' agency, both from the side of the "governing" and the "governed". The capacity of human and non-human actants (individuals or groups) to influence the territorialisation of assemblages becomes central.

The first chapter of this collection by Wynne-Jones and Vetter offers an enlightening application of assemblage that demonstrates the value of going beyond the binary categorisations and reduction of complex processes inherent in a unidimensional explanatory theory of neoliberalism. Rejecting readings of hybrid neoliberalism, the authors look at the multiple motivations and logics behind the application of payments for ecosystem services in Wales, and document the diverse reactions to PES and the multidimensional processes of transformation. These processes are influenced by local actors who, not being passive targets of these governance instruments, actively use them to impact wider circulations of PES discourse and the AEG assemblage. Here the question of the agency of individuals in relation to structural constraints is open and reframed within an assemblage perspective.

Addressing the same discussion of “hybrid” governance instruments, O’Connell and Osmond explore a Water Quality Trading program in the American context of North Carolina, involving the State, private traders, and agricultural stakeholders. The authors apply an assemblage perspective to farmer decision-making in which multiplicity is revealed at the level of individual motivations and constraints. Stepping away from reductionist explanations of farmers’ decision making and agency, this chapter makes an important contribution by reframing their actions as part of a complex human-natural system. Their analysis of the creation of Water Quality Trading Schemes does the important ontological work of disrupting the highly prescriptive and linear logics of traditional models of adoption. Instead, understood as assemblages, these schemes reveal multiple motivations and diverse logics in similar ways to those seen in the Welsh case study.

The multiplicities characterizing assemblage, the fact that an assemblage is made of a multitude of moving relations, reframe the question of the outcomes of AEG instruments and actions. In other words, an assemblage approach more or less directly questions the ability of “governing” to control the processes that develop in association with its actions of governance. Iba and Sakamoto’s chapter illustrates the wide variability of outcomes of a national multifunctional policy. They compare two local communities and the varying “successes” of the policy applications, relating indirectly the question of AEG to the more general question of rural changes.

The unexpected outcomes of governance action are sometimes related to internal tensions and contradictions within the governance assemblage. Welz’s account of the transformations to halloumi cheese production occurring in Cyprus as a result of Protected Denomination of Origin policies emphasises both the interrelations of policy instruments that are artificially segregated into siloes through formal governance processes, as well as the under-recognised negotiations between actors that participate in the definition, or territorialisation of, what “is” Halloumi cheese.

While the previous chapters detail the capacity for assemblage to take seriously the multiplicity and processual character of the social in the present – in a given time and place – Dwiartama’s contribution applies a historical gaze to the governance of agriculture in Indonesia. The chapter

first helps to reconsider established and orthodox historical categorisations by focusing on dominant modes of governance, then creates a radical reframing by drawing inspiration from discussions of the concepts of discipline and control in Foucault and Deleuze. At the same time, the chapter goes beyond simplifications reducing the social reality to one single logic and emphasises the accumulation of modes of governance in Indonesian history, resulting in a contemporary assemblage of agricultural governance, characterised by its multiplicity and the co-existence of logics.

### The politics of territorialisation

Despite being comprised of multiplicities and irreducible possibilities, assemblages are continually in the process of territorialisation, congealing in specific configurations and identities which are immediately contested and destabilised. In this never-ending process of (de-)(re-)territorialisation, elements of the assemblage—human and non-human—play active roles and express agency, as articulated in the first section. Consciously or not, they engage in struggles and attempts to coordinate the assemblage to fit complex objectives. Consequently, an assemblage can be seen as inherently political. Seen as occurring within an assemblage, however, not all such struggles are about hierarchies and direct relations of power. Many, in fact, act very subtly at the level of the territorialisation of the assemblage.

The challenges inherent to coordination of multiple political interests across global to local scales are addressed in Nel's chapter on the emergence of a carbon forestry centred in Uganda,

but extending to interests in Europe and beyond. The efforts to territorialise carbon forestry originate in international climate change negotiations, Ugandan government ministries, the offices of environmental NGOs, carbon investors and donor states as well as the communities inhabiting the newly designated forests. While the financial power of investors and the political power of industrialised countries introduces foreign claims on use and access rights, the activities of communities de-territorialise the resulting coordination. Thus, the assemblage approach is a powerful tool for uncovering these kinds of political tensions and power relations.

The chapter by Burch, Legun and Campbell interrogates the role of metrics in the battlefield to territorialise environmental issues and governance solutions. The authors describe the surge of radionuclides in the Japanese food system that unsettled the usual definition of secure food in the aftermath of the Fukushima nuclear accident. Attempts by governmental agencies to settle and frame these overflowing elements were challenged by groups of consumers offering alternative knowledge and metrics. Again, numbers and metrics reveal their powerful capacity in territorialising complex assemblages in order to render them governable. The authors conclude by highlighting the need for more deliberative processes in the constitution of governance instruments.

Further evidence of the multiple sites and political drivers of resource governance is provided in Thompson's chapter. Located in the context of the re-territorialisation initiated by the de-centralisation of state water policies, he analyses media representations of water degradation



attributed to agricultural run-off. Media accounts are shown to reaffirm existing territorialisations defined by the distinct interests of agents in areas of high tourist interest compared to those focused on agricultural production.

This section of the book then considers processes of redefinition and requalification – re-territorialisation – of environmental issues. Tall and Campbell document how the “dirty dairying” campaign in New Zealand created a new ontology of the developing dairy farming industry by associating it with issues of water quality. The lack of attention given to this connection before the campaign reflected the relative ‘invisibility’ of water quality degradation and its causes. Once this association between the two elements – dairy farming and water – became a visible “fact”, the related assemblage re-territorialised in an unanticipated and irremediable way.

Soybean production offers a similar reconsideration in its association to the future of the food system. Once seen as a solution to several problems of sustainability, it has become, for some, a problem in itself when associated with: unsustainable farming practices, GMOs, monoculture and deforestation. Bentia and Forney explore in their chapter a European project that aims to transform soy assemblages, by re-localising the production within the EU boundaries and changing the agricultural practices and uses around soy. They document an explicit attempt to re-territorialise the soy assemblage around new objectives of sustainability and changing agricultural and food systems.

### Assemblage for building new AEG practices

The last section of the book gathers two chapters that make an additional step in the application of assemblage thinking. They use this theoretical framing to move beyond critical research by applying an assemblage approach not only to the study but also to the creation of AEG practices. By doing so, they offer a valuable intervention to debates surrounding the constitution of enactive research.

In his chapter, Carolan unpacks the use of big data in contemporary US farming. Applying a “weak theory” of assemblage – that is, resisting the urge to sum up categorisations that lock our understanding of the social in monolithic explanations – he confronts radically different narratives on big data related to specific positionalities (conventional farmers, engineers from the big data industry, and farmer “hackers”). As a result, he emphasizes the multiplicity of the assemblage around big data and the related production of multiple possibilities. Moreover, he encourages scholars to move away from overly critical representations of technologies and to look more “hopefully” for the platforms where data are assembled in ways that produce “cracks of difference” and open hopeful possibilities.

In the last chapter of this collection, Beilin interrogates the diverse assemblages that characterise water governance in South-Eastern Australia with the intent of providing ontological framings that enable more equitable and environmentally sustainable policy. She

identifies three existing assemblages – the environmental flow, the consumptive flow and the indigenous flow – each of which is limited through its relationships with the same settler-colonial ontology. Developing a dialogue between a theorisation of assemblage and the epistemology of practice, Beilin constructs an “imaginary counter narrative” in the form of an assemblage of small-holder agro-ecological settling. In doing so, she generates a vibrant argument for an assemblage approach that provides the “possibility of transformative re-imagining” to answer the urgent need for perspectives with greater capacity to incorporate the complexity of policy formation and the dispersed nature of power and agency within such practices.

#### Assembling governance and social sciences: theoretical challenges for breaking new ground in research on AEG

The varying depth and breadth with which our contributors engage with the concept of assemblage is best described as an array of experimentations. In every case, the authors construct what is an emergent theorisation of assemblage – never fully defined and bounded, but always seeking to destabilise existing categories and constraints on the multiplicity of actors, power and process. While at one level, these are ‘playful’ interventions (see Mol 2010), they are also very serious and intentional efforts. Their intention is to introduce new forms of understanding and coordinating the realities of AEG in hopes of enlightening our understandings of the shortcomings of existing governance practices as well as enacting new and more hopeful ones. The chapters offer the opportunity to progress in the theorisation of

assemblage, in the context of AEG and beyond, notably on the more specific discussion around agency, processes of territorialisation and the possibility of developing enactive research practices. In concluding, we identify the ontological by-ways along which our authors have developed assemblage as an approach as well as offering our own hopeful expectations of the emergent theorisations of AEG.

The application of assemblage by our contributors further reflects its resonance with other social theorisations, including the centrality of relations and the active role of non-humans (at the core of Actor Network Theory) and the distributed nature of power and agency (central to Foucault). The intervention of the collected chapters contributes to the reworking and mobilisation of the concept in different contexts, opening new possibilities for analysis and interpretation of the social. As an ontological project, the book inserts assemblage within the theorization of AEG with the intention of focusing on the emergent social dynamics inherent to governance. Moreover, assemblage is offered as a means to address the lacunae inherent to oppositional conceptualisations of: multiple and one, fixed and changing, existence and ideas.

As noted above, we trace our application of assemblage to Deleuze and Guattari and their emphasis on the irrepressible desire to assemble, while acknowledging the always changing and contingent coordination of the resulting assemblage. Their proposition provides two insights of direct relevance to our engagement with AEG. First, it offers an alternative conceptualisation of agency as produced by the assemblage; it is collective, distributed and not the proprietary realm of specific agents (human or non-human). This understanding of agency has strong

familiarities with that developed in ANT. However, the insertion of desire as a fundamental force in the territorialisation of assemblages emphasises an individual level of agency, which is not fully acknowledged in ANT (Müller 2015). Our position follows that of McFarlane and Anderson (2011: 63), arguing that an assemblage perspective “attends to the agency of wholes and parts, not one or the other.” Actors have projects; they try to influence the assemblage; they engage with the assemblage, even if, at the end, the outcomes never fully match these individual plans. This framing informs Li’s (2007:265) operationalisation of assemblage as having a “potential to finesse questions of agency by recognizing the situated subjects who do the work of pulling together disparate elements without attributing to them a master-mind or a totalizing plan.” Our contributors also demonstrate the potential, as suggested by McFarlane, (2011) for an assemblage perspective develop better understanding of the unexpected effects of governance tools, and enable the rethinking and reconceptualization of critique and issues of power in renewed ways. A diminished emphasis on structural drivers is also the product of the second insight, namely that assemblages are emergent and never fully completed or territorialised. This characteristic of assemblages weakens the constraints imposed by structure on social dynamics and facilitates an emphasis on the opportunities for intervention, experimentation and change. At the same time, it also eliminates the possibility of stasis or optimal outcomes as any territorialisation of an assemblage is subject to de- and re-territorialisation as its elements interact and re-arrange.

This tension initiated by the continuous movements of territorialisation and de-territorialisation produces a perpetuum mobile where assemblages are always oriented toward potentialities

and possible and desirable futures. Any given assemblage is open to other assemblages because the forces of de-territorialisation constantly expose it to redefinition. The emergent nature of the assemblage is an important aspect in the concept's diverse applications within this volume. For example, Beilin draws on DeLanda's (2006) theorisation of assemblage as the result of a multiplicity of relations that are always renegotiated to position water governance outside totalities and essentialism. Burch, et al. uses assemblage in a manner more closely aligned to Actor Network Theory to demonstrate the active potential (or agency) of non-humans through their capacity to divert territorialisation efforts.

If assemblages are defined by their ephemeral nature—always caught in the tension between territorialisation and re-territorialisation and oriented toward becoming and potentialities—are they real? In other words, do assemblages really exist or are they social constructs? The question might, at first glance, seem rhetorical; however, the answer has significant consequences for what an assemblage approach fundamentally allows us to do. On one hand, thinking of assemblage as real, as defended notably by DeLanda (2006), potentially recognises the materiality of assemblages that exist beyond the capacity of human 'assembling' or 'assembling'. Such an approach arguably gives more agency to non-humans, answering, for instance, Bennett's (2009) call for the ontological redistribution of causalities inherent to political ecologies in which non-humans exhibit political capacities and initiate or drive actions with social consequence that are fully outside the 'agency' of human actors. In Bennett's argument, this opens space to reassess the issue of 'responsibility' – and to shift attention away

from assigning ultimate blame to the exclusion of recognising the overdetermined nature of events.

On the other hand, other interpretations of assemblage focus on the assembling that is initiated by – or the assemblage that is recognised by – human actors. This approach (most notably found in Li 2007) allows for a demonstration of an admirable awareness of the multiple, emergent complex actors in assemblages, while still affording ‘special’ recognition of human efforts to coordinate and structure – i.e territorialise – assemblages (a practice that generally involves imposing boundaries on what is included within an assemblage). One benefit of this emphasis on the human construction of assemblages is to open up particular styles and strategies of human political action and intention.

This openness and orientation toward the potentialities characterizing assemblages has also encouraged scholars to explore the implications for the research itself. For McFarlane and Anderson, assemblage thinking relates to an “ethos of engagement attuned to the possibilities of socio-spatial formations to be otherwise within various constraints and historical trajectories.” (201: 162). These epistemological and methodological implications of the assemblage perspective are apparent in the contributions by Carolan and Beilin. Their chapters reinforce similar reflections on the possibility of developing enactive research practices (Forney 2016b; Lewis et al. 2013). What interests us here is that thinking with assemblage provides a mechanism through which the role of research and academics in territorialization processes can be addressed. This goes beyond a typical reflexive stance. By asserting the participation of

research in the construction of social life, an assemblage approach opens spaces to think about the potential and desirability of our engagements with the possibilities as well as our responsibilities as elements of the assemblage.

These discussions emphasise the emergent nature of assemblage as an approach to explanation in the social sciences. They point to alternative understandings of and engagement with AEG in which the assemblage is co-constituted by humans and non-humans and where conceptual and material aspects are considered to make different but equal contributions to the construction of assemblages as both “real” and “constructed”. In pursuing this argument, we are aligning with Deleuze and Guatarri when they say that assemblages are both content and expression (1987, 504).

The chapters we have collected in this book leave as many open questions as they provide answers. This is indicative of an emergent theorisation of AEG. Rather than providing a fully structured theory of assemblage, we offer instead the encouragement to engage with assemblage as a tool for expanding not only our understandings of AEG, but also the potentialities through which successful governance and improved environmental practice might be achieved. As indicated by our contributors, such an achievement begins with the de-territorialisation of predominant forms of explanation. Initial steps involve the undermining of categories related to markets, decision-making, multifunctionality and quality designations whereby the agency of less recognised or unacknowledged actors is introduced. Further steps are taken in efforts to articulate the multiplicity of power relations in environmental



governance in the form of multi-scalar interests, the role of non-humans, the overdetermination of context, the emergence of environmental awareness and the re-articulation of sustainability. At the same time, assemblage approaches also provide the opportunity to re-territorialise AEG with alternative and enactive modes of research (in the manner of weak assembling or an epistemology of practice). Thus, this book orients us toward new paths of thinking about and reflecting on the governance of agri-food-systems, while also emancipating our own practice as we promote the experimentation with new practices and policies of governance.

## References

Agrawal, Arun. 2005. *Environmentality: Technologies of Government and the Making of Subjects*. Duke University Press: North Carolina.

Benabou, Sarah. 2014. "Making Up for Lost Nature?: A Critical Review of the International Development of Voluntary Biodiversity Offsets." *Environment and Society*, 8: 103-123.

Bennett, Jane. 2009. *Vibrant Matter: A Political Ecology of Things*. Chapel Hill, NC: Duke University Press.

Callon, Michel. 1986. "Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Brieuc Bay. Power, action and belief". *A new sociology of knowledge*, 32: 196–233.

Carolan, Michael. 2013. Doing and enacting economies of value: Thinking through the assemblage. *New Zealand Geographer*, 69(3): 176-179.

Carolan, Michael. 2016. *Decentering biotechnology: assemblages built and assemblages masked*. Routledge.

DeLanda, Manuel. 2006. *A New Philosophy of Society: Assemblage Theory and Social Complexity*, London: Continuum.

Deleuze, Gilles and Félix Guattari. 1987. *A Thousand Plateaus*. Minneapolis, MN: University of Minnesota Press.

Dwiartama, Angga, Christopher Rosin and Hugh Campbell. 2016. 'Understanding Agri-Food Systems as Assemblages: Worlds of Rice in Indonesia.' In *Biological Economies: Experimentation and the politics of agrifood frontiers*, edited by Richard Le Heron, Hugh Campbell, Nick Lewis and Michael S. Carolan. London / New York: Routledge.

Forney, Jérémie. 2016a. "Blind spots in agri-environmental governance: some reflections and suggestions from Switzerland." *Review of Agricultural, Food and Environmental Studies*:1-13. doi: 10.1007/s41130-016-0017-2.

Forney, Jérémie. 2016b. "Enacting Swiss Cheese: About the Multiple Ontologies of Local Food." In *Biological Economies: Experimentation and the politics of agrifood frontiers*, edited by Richard Le Heron, Hugh Campbell, Nick Lewis and Michael S. Carolan. London / New York: Routledge.

Fredriksen, Aurora. 2014. *Assembling value(s) What a focus on the distributed agency of assemblages can contribute to the study of value*. LCSV Working Paper Series NO. 7. Available: <http://thestudyofvalue.org/wp-content/uploads/2014/07/WP7-Fredriksen-Assembling-values.pdf>

Guthman, Julie. 2008. "Neoliberalism and the making of food politics in California." *Geoforum* 39 (3):1171-83. doi: <http://dx.doi.org/10.1016/j.geoforum.2006.09.002>.

Haggerty, Julia Hobson. 2007. "I'm not a greenie but...": Environmentality, eco-populism and governance in New Zealand Experiences from the Southland whitebait fishery. *Journal of Rural Studies*, 23(2): 222-237.

Harris, Edmund. 2009. "Neoliberal subjectivities or a politics of the possible? Reading for difference in alternative food networks." *Area* 41 (1):55-63. doi: 10.1111/j.1475-4762.2008.00848.x.

Higgins, Vaughan, Clive Potter, Jacqui Dibden, and Chris Cocklin. 2014. "Neoliberalising rural environments." *Journal of Rural Studies* 36 (Supplement C):386-90. doi: <https://doi.org/10.1016/j.jrurstud.2014.10.006>.

Higgins, Vaughan, and Geoffrey Lawrence, (ed.). 2005. *Agricultural governance: globalization and the new politics of regulation*. Routledge: London and New York.

Higgins, Vaughan, and Wendy Larner (ed.). 2017. *Assembling Neoliberalism: Expertise, Practices, Subjects*. Palgrave Macmillan USA.

Latour, Bruno. 2005. *Reassembling the social. An Introduction to Actor-Network-Theory*. New York: Oxford University Press.

Law, John, and John Hassard. 1999. *Actor network theory and after*. Oxford: Blackwell.

Le Heron, Richard, Hugh Campbell, Nick Lewis, and Michael S. Carolan (ed.). 2016. *Biological Economies: Experimentation and the politics of agrifood frontiers*. London / New York: Routledge.

Lewis, Nick, Richard Le Heron, Hugh Campbell, Matthew Henry, Erena Le Heron, Eric Pawson, Harvey Perkins, Michael Roche, and Christopher Rosin. 2013. "Assembling biological economies: Region-shaping initiatives in making and retaining value." *New Zealand Geographer* 69 (3):180-96. doi: 10.1111/nzg.12031.

Lewis, Nick, Richard Le Heron and Hugh Campbell. 2017. 'The Mouse that Died: Stabilizing Economic Practices in Free Trade Space. In *Assembling Neoliberalism: Expertise, Practices, Subjects*. Palgrave Macmillan USA.

Li, Tanya, M. 2007. "Practices of assemblage and community forest management." *Economy and Society*, 36(2): 263–293.

Linke, Janke. 2016. Re-shaping 'soft gold': fungal agency and the bioeconomy in the caterpillar fungus market assemblage.' In *Biological Economies: Experimentation and the politics of agrifood frontiers*, edited by Richard Le Heron, Hugh Campbell, Nick Lewis and Michael S. Carolan. London / New York: Routledge.

Lockie, Stewart. and Higgins, Vaughan. 2007. Roll-out neoliberalism and hybrid practices of regulation in Australian agri-environmental governance. *Journal of Rural Studies*, 23(1): 1-11.

McFarlane, Colin. 2011. "Assemblage and critical urbanism." *City* 15 (2):204-24. doi: 10.1080/13604813.2011.568715.

McFarlane, Colin, and Ben Anderson. 2011. "Thinking with assemblage." *Area* 43 (2):162-4. doi: 10.1111/j.1475-4762.2011.01012.x.

Mol, Annemarie. 2010. "Actor-Network Theory: sensitive terms and enduring tensions." *Kölner Zeitschrift für Soziologie und Sozialpsychologie. Sonderheft*, 50: 253-269.

Müller, Martin. 2015. "Assemblages and Actor-networks: Rethinking Socio-material Power, Politics and Space." *Geography Compass* 9 (1):27-41. doi: 10.1111/gec3.12192.

Ong, Aihwa and Stephen. J. Collier (eds.) 2005. *Global Assemblages. Technology, Politics, and Ethics as Anthropological Problems*. Malden MA/Oxford UK: Blackwell.

Palmer, James, and Susan Owens. 2015. "Indirect land-use change and biofuels: the contribution of assemblage theory to place-specific environmental governance." *Environmental Science & Policy*, 53: 18-26.

Rosin, Christopher and Hugh Campbell. 2009. "Beyond bifurcation. Examining the conventions of organic agriculture in New Zealand." *Journal of Rural Studies* 25 (2009):35-47.

Rosin, Christopher, Hugh Campbell and John Reid. 2017. "Metrology and sustainability: Using sustainability audits in New Zealand to elaborate the complex politics of measuring." *Journal of Rural Studies*, 52: 90-99.

Rosin, Christopher, Katharine Legun, Hugh Campbell, and Marion Sautier. 2017. "From compliance to co-production: emergent forms of agency in sustainable wine production in New Zealand." *Environment and Planning A*. <https://doi-org.ezproxy.lincoln.ac.nz/10.1177/0308518X17733747> |

Sullivan, Sian, 2010. 'Ecosystem service commodities' – a new imperial ecology? Implications for animist immanent ecologies, with Deleuze and Guattari. *New Formations: A Journal of Culture/Theory/Politics* **69**, 111-128.

Sullivan, Sian. 2014. "The natural capital myth; or will accounting save the world? Preliminary thoughts on nature, finance and values". *Leverhulme Centre for the Study of Value* (LCSV) Working Paper Series NO. 3 Available: <http://thestudyofvalue.org/wp-content/uploads/2013/11/WP3-Sullivan-2014-Natural-Capital-Myth.pdf>

Vanclay, Frank and Geoff Lawrence. 1994. Farmer rationality and the adoption of environmentally sound practices; a critique of the assumptions of traditional agricultural extension. *European Journal of Agricultural Education and Extension*, 1(1): 59-90.

Whatmore, Sarah J. 2013. Earthly powers and affective environments: an ontological politics of flood risk." *Theory, Culture & Society*, 30(7/8): 33-50.

Wolf, Eric R., and Alessandro Bonnano (eds). 2014. *The Neoliberal Regime in the Agri-food Sector: Crisis, Resilience and Restructuring*. Abingdon/New York: Routledge.