Actor-Network Theory for Development

Working Paper Series

Actor-Network Theory for Development working papers apply the ideas and concepts of actor-network theory to issues and cases within international development

Paper No. 2

Facing the Dilemmas of Development: *Understanding Development Action through Actor-Network Theory*

ISAM FAIK, MARK THOMPSON & GEOFF WALSHAM

2013

Published by: ***Centre for Development Informatics***
Institute for Development Policy and Management, SED
University of Manchester, Arthur Lewis Building, Manchester, M13 9PL, UK
Tel: +44-161-275-2800/2804 Email: cdi@manchester.ac.uk
Web: http://www.manchester.ac.uk/cdi

View/Download from:
http://www.cdi.manchester.ac.uk/resources/ant4d

ISBN: 978-1-905469-65-9

Table of Contents

Facing the Dilemmas of Development: *Understanding Development Action through Actor-Network Theory*

Isam Faik[1], Mark Thompson[2] and Geoff Walsham[2]
University of Cambridge, UK
Email: i.faik@soton.ac.uk

2013

Abstract

Development is a concept that applies to multiple levels, from national capabilities to individual wellbeing. It connects actors at varying scales, from the United Nations to peasants in an African village. It covers a wide range of timescales, from short-term reforms to long-term aspirations. Dealing with these shifts in scale is arguably one of the greatest challenges in theorizing development. This paper argues that actor-network theory (ANT) offers a promising ontological and methodological basis for addressing these challenges. Two ANT principles are identified as particularly relevant to our conceptualisation of development: flat ontology and generalized symmetry. These principles allow shifts in the conception of development space, time and actors, which avoid the increasingly impractical dichotomies between local and global space, between short-term and long-term timescales, and between micro and macro actors. ANT is interpreted in this paper to suggest a shift from understanding development through these dichotomies to a framework based on continuous tensions between the presence and absence of different actors in the networks of development action, and between the stability and change of these networks. This framework offers a means to reconcile the emerging relational approaches that view the various dimensions of development as multiple, emergent, constructed, and provisional, with the more traditional approaches that view them as stable, closed, and mappable.

[1] Southampton Management School, University of Southampton, UK
[2] Judge Business School, University of Cambridge, UK

1. Introduction

The domain of development is fraught with dilemmas. Both theories and practices of development face serious challenges related to such issues as the perception of North-South relations, the extent and nature of local participation, the roles of "mainstream" and "alternative" development approaches, the need for technological innovation, and the acceptable levels of environmental, social, cultural and economic costs (Simon 2003). Providing conceptual tools to deal with these dilemmas is arguably one of the main contributions of development theory to development practice.

Actor-network theory (ANT) is a theoretical approach that has the potential to help reconceptualise many of the issues behind the dilemmas of development theories and practices, but that has hitherto received insufficient attention in the development literature. In particular, this paper suggests that ANT can be especially insightful in addressing the dilemmas related to the constant variations in scale that characterise much of current development action. In this paper, we approach these variations in scale in terms of the three categories of **space**, **time**, and **actors**, which we argue construct and are constructed by development actions and practices.

The scale of development **space** relates to the geographical scope of the desired developmental changes, which varies from houses, to local communities, to markets, to cities, to countries, to continents, to the world as a whole. Conceptualizing the entanglement between these spaces, particularly as they undergo simultaneous transformation processes, is a major theoretical and practical challenge for development studies and practices. It is often articulated in terms of local-global dynamics, but as the intensification of the processes of globalization make the boundaries between the abovementioned spaces increasingly blurry, the coarse differentiation between a local and a global space becomes less useful for understanding and enacting developmental transformations. On the other hand, more recent approaches to the conceptualization of the spaces of development problematize the local/global distinction by proposing relational and constructivist

views of space. However, most of these approaches remain largely distant from the policy-oriented character of development thinking.

The scale of development **time** refers to the variations in the time periods that it takes both the intended and unintended consequences of development initiatives to transpire. These periods are usually categorized into the short, the medium, and the long term. Questions of sustainability, progress, and means-ends relationships are at the forefront of concerns with the temporal dimension of development. Current thinking in the field is dominated by linear views of the unfolding of time, but alternative perspectives that highlight the emergent and plural nature of the futures of various communities are becoming increasingly influential. Yet, addressing the tensions between the demands of the different timescales of development (short term vs. long term) remains a challenge for both types of perspectives. It is a practical challenge that relates to the methodologies adopted for determining the desired future conditions, but it is also a theoretical challenge that relates to the adopted ontology of time and its implications for understanding and practicing social, economic, and political change.

The scales of development **actors** refers to the variations in the type of actors implicated in development work, which include individuals, community-based organizations (CBOs), local and international NGOs, national and multinational firms, governments, and international organizations. Some of these actors are considered large and powerful, while others are considered small and relatively powerless. This raises important challenges for the representation of these actors within development accounts whether in the design, implementation, evaluation, or theorization of development action. Dominant top-down approaches tend to obfuscate the voices of the weak and marginalized groups they are meant to serve. However, even the increasingly prevalent participatory approaches continue to face important challenges relating to the representation and understanding of "the other" by development professionals (Kapoor 2005).

In this paper, we argue that ANT offers a theoretical basis from which many of these dilemmas of scale can be addressed more effectively. We illustrate how ANT can help bypass the increasingly impractical divides between global and local space, between short-term and long-term timescales, and between micro and macro actors. In particular, we showcase how ANT can be the basis of reconciliation between the rationalistic, linear approaches that have dominated development theorizing and practice since the early modernization era, and the poststructuralist, relational approaches that have emerged in the last two decades. Our argument is based on the suggestion that, with regard to the question of development scales, there is a need to bypass the divides (local/global, short-term/long-term, micro/macro) that stifle our understanding of what development is or can be, while taking account of the connections that stabilize space, time and actors and make them readily usable by development policy and professional practice.

To illustrate the tensions between the co-existing approaches we draw from Chambers' (2010) differentiation between a paradigm of 'things' and a paradigm of 'people'. The 'things' paradigm approaches the development landscape as a set of fixed, reified, standardized, and measurable entities, while the 'people' paradigm considers it to be constituted of fluid processes and emergent phenomena. Chambers associates the first paradigm with what he calls "neo-Newtonian professionalism" which works under the assumption of controllable conditions and on the basis of universalities, while he associates the second paradigm with "adaptive pluralism" which takes into account the "local, complex, diverse, dynamic, uncontrollable, and unpredictable" conditions of poor people. Therefore, the things paradigm translates into top-down methodologies, while the people paradigm is often the basis for participative methodologies.

The differentiation between the two paradigms has important implications for the issue of scale. The question of scale approached within the "things" paradigm would be based on a presumption of actors, space, and time as predictable, measurable and stable. In this paradigm, **actors** have fixed properties that determine their relative effects, **spaces** are mappable and differentiable, and **time** periods follow a

linear progression towards a future that is increasingly predictable. On the other hand, approaches that are based on the "people" paradigm take into account the complexity of actors, the intertwining of spaces, and the unpredictability and plurality of possible futures.

However, the continuous appeal of the "things" paradigm in development professionalism as well as research is indicative of the need for approaches that can bring the perceived benefits of the systematic, realist, and tangible methodologies that emanate from this paradigm closer to the more grounded, responsive, and flexible methodologies that ensue from the "people" paradigm. What is arguably needed is a change in mindset that is based on sound ontological considerations. Chambers (2010) argues that "our experiences and mindsets feed and are fed by not only different concepts but different ontologies," which implies that a shift in the mindset of development requires particular attention to the ontological assumptions made about its practices. Correspondingly, it is through its alternative ontology that we believe ANT can contribute to the emergence of a mindset that can reconcile the two paradigms.

ANT proposes a "flat ontology" that rejects any relationship of "containment" between entities. In this ontology, no actor is ever fully contained within another, no citizen in a nation, no artefact in a system, no event in a narrative, and no text in a context. Entities are always simultaneously actors and networks. In addition, the network in the expression 'actor-network' is always an unfolding process and never an end state. Actors are defined by their relations; in other words, by the network of their associations. Their size and power are not given properties of their presumed essences but outcomes of the strength and intensity of these associations. Space and time do not constitute a background for action, but are part of the network of action and are 'constructed' through its unfolding.

The rejection of containment relationships is applicable to stabilized 'things' as their figurations and representations are conducive to a conception in which entities can be embedded or "contained" in one another. However, it also raises important

questions when applied to processes. A process approach does not necessarily negate a relationship of containment between different processes. For example, social change, as a process, is viewed in many scholarly circles as embedded or 'contained' in the processes of political or economic changes, hence more influenced by them than influencing them. Rejecting containment relationships between processes has therefore important implications for how we conceptualize and apply processes of change.

ANT's propositions raise other issues that can bypass some of the bases for the differentiation between the 'things' and the 'people' paradigms. ANT emphasizes the heterogeneity of the networks that define the various social actors; they are never constituted of people only but involve people, objects, and texts. While Chambers paradigmatic approach distinguishes between 'things' and 'people', ANT sees more analytical value in starting with a symmetry between the two ontological categories. A symmetrical approach would highlight how things are part of what defines the identities and the aspirations of people, and how people's actions and interactions are part of what stabilizes objects, processes, texts, and ideas to become 'things'.

To develop the above arguments we structured the remainder of the paper into three sections. The next section, section 2, provides an overview of both the traditional and the relational approaches to conceptualizing the scales of development, presented along the three dimensions of space, time, and actors. Section 3 presents our reading of ANT and its core concepts, with particular emphasis on its flat ontology and generalized symmetry principles. Section 4 is a discussion of how ANT's propositions can be the basis of an alternative approach to conceptualising the space, time, and actors of development.

2. Scales of Development

2.1. Scales of space

One of the main challenges in conceptualizing development is the dynamics between global and local processes of change. Simon (2003) argues that these dynamics impose a complex dilemma for development studies and policy. He explains this dilemma as based on the fact that, on the one hand, we are witnessing "increasing emphasis upon the local and the importance of local agency," while on the other "the global sphere is steadily assuming greater importance for particular communities and their development aspirations." Conceptualizing the space in which development actions unfold in terms of the dichotomy between the local and the global is therefore increasingly constraining more than it is enabling the proper understanding of such actions along with their contexts and consequences.

Our conception of space is critical to our understanding of development. If development is about differentials in access to resources and life chances between peoples, then it is fundamentally about relative poverty, and people experience poverty in and through their particular places and localities (Power 2003, p.4). Viewed thus, studying development requires engagement with peoples' "interactions with different spaces and places and the ways in which these interactions have been stretched and extended at different times and through different processes. In this sense, our consideration of space, place and scale can offer alternative organizing principles around which to think about development" (Power 2003: 5). Power proposes conceptualizations of development that shift the focus from formal institutions such as governments, corporations, and NGOs, to households and communities. He admits however that "this is a very difficult balance to maintain consistently, since development operates across so many spatial scales and involves different degrees of formality simultaneously" (Power 2003: 5). In this paper we show how ANT can provide a theoretical and ontological basis for conceptualizations of space that cut across these spatial scales.

Recent thinkers in the geography of development have advanced conceptions of space that challenge traditional Euclidean, cartographic, notions of space. For example, Massey argues for an alternative approach that views space as the product of interrelations, multiplicity/heterogeneity, and as something always under construction (2005, p.9). In its deliberate politicization of the concept, Massey's notion of developmental space as multiple and emergent echoes the stance of other poststructuralist development geographers such as Murdoch (2006), Amin and Thrift (2002), Doel (1999), and Harvey (1996), all of whom adopt a relational approach to how developmental space is conceived and represented. While we show in this paper how ANT supports many of the insights provided by these theoretical approaches, we also highlight how the ontological and methodological principles of ANT can help us avoid the tendency in such approaches to overemphasize the construction of space through discursive practices at the expense of the more material practices of development.

This conceptual challenge is increasingly central to our understanding of development action given the centrality of technological innovation to most current development initiatives. The widespread adoption of information and communication technologies (ICTs) is producing a reshuffling of spatial categories and domains. Having access to the networks generated by these technologies is becoming increasingly important for accessing services and information that were available through different channels in the not so distant past. Far from functioning within stable and predefined spaces, ICTs are redefining these spaces, or as Simon (2003) argues, thanks to or because of ICTs, "the geographies of accessibility and exclusion are being dramatically redrawn."

2.2. Scales of time

Another important challenge to the proper conceptualisation of development is the varying time scales for the expected outcomes of development initiatives to materialize. Both the intended and unintended consequences of development interventions vary from short term changes to long term transformations. In particular, more linear notions of development are being questioned with the

increasingly accepted characterisation of development realities as uncertain, chaotic, and variable – a view that challenges conventional planning and policy frameworks (Berkhout et al. 2003).

An important way in which the temporal dimension is being re-evaluated within the development sphere relates to the notion of emergence. There has undoubtedly been a new emphasis on plurality: a shift from macro-structures to actor-orientation and agency; from structuralism to constructivism; from determinist to interpretative views of progress; and an orientation away from Eurocentrism to polycentrism (Pieterse 2001, p.13). In turn, such shifts imply an 'adaptive pluralism' (Chambers 2010): a parallel movement away from more linear conceptions of unfolding time towards an acknowledgement of the complexity attendant on plurality: in order to be attentive to plural realities, we must be adaptive, and recognise the way in which multiple branches and paths of experience may affect one another over time in a way that appears unpredictable at the start (Westley et al. 2007).

In response, there is a growing genre within development practice oriented not only towards more participative, but also more open-ended, approaches to improving peoples' lives. As Mosse (2001) points out, such 'process-oriented' development work is concerned with continuous dynamics, rather than 'snap shot' indicators; it is oriented to the present, rather than planning the future, or reporting the past; it is action-oriented in the sense that possibilities only appear through intervention and change; it is inductive and open-ended; and its experience and insights are resistant to packaging within standard or objectively valid formats. In the argument of this paper, ANT is presented as a way to consolidate many of the advantages of the process-oriented and open-ended approaches to development through the articulation of a corresponding ontology of time.

In addition to engaging with plurality, the temporal dimension of development relates also to another common developmental objective: the notion of sustainability. The idea of sustainability is often perceived as a concern that short-term benefits will extend to the long-term. However, as Swidler & Watkins (2009)

argue, sustainability can also become a trade off between the two. They refer for example to a study about development work in Malawi to point out how some human rights organizations refused to provide direct material help (short-term) to the local population out of concern for creating dependency, and they instead preferred to focus on education and training (long-term). In general, Swidler & Watkins argue that, in practice, the doctrine of sustainability can lead to donors limiting their support only to projects that can be sustained after the original funding runs out, excluding thereby other projects that could be more immediately beneficial to local communities. The adopted ontology of time is an important part in how such dilemmas are addressed. Conceptions of time that rigidly differentiate between the short and the long term are arguably stifling the proper appreciation of the new dynamics through which change unfolds in the different communities. Providing a theoretical basis for bypassing these differentiations is one of the key contributions that ANT can make towards an improved conceptualization of the temporal dimension of development.

2.3. Scales of actors

The third challenge in conceptualising development in relation to its shifting scales is the variation in our perception of the "size" of the different actors involved in development work. Both the actors "doing" the development and those "receiving" it are commonly presented in development accounts as being either macro actors or micro actors. These include individuals, households, CBOs, NGOs, local and multi-national companies, governments, and international organizations. While these actors cannot be compared in a physical sense, their representations ascribe different sizes to them, often as a function of their power and ability to mobilize resources and effect change.

The perception of the relative scale of development actors is an important determinant of the type of interaction that takes place between them. This perception can reflect for example on the relationship between international donor organizations, MNCs, governments, NGOs, and CBOs, as being one of aid or cooperation (Padron 1987), partnership or control (Raynolds 2009). This perception

is not solely a function of the size of these actors as determined by the number of their members or the geographical spread of their operations, but is also shaped by the extent of their impact. It is with this conception of the scale of actors that Uvin et al. (2000) argued that scaling up NGOs is largely about "expanding impact" and not about "becoming large".

The relative scale of actors raises also questions of accountability. Similar to some banks, development actors can become "too big to fail" in their particular domain of action, which affects their accountability to the recipients of their services. Likewise, actors that act as mediators for the provision of support to the poor can be perceived and have a self perception as being small, with impact that is limited in space and time, hence with limited accountability. This perception is however increasingly challenged by the increased connectivity of development work through the widespread adoption of new institutional mechanisms facilitated by the increasingly advanced communication technologies. Therefore, similar to our argument regarding the conceptualization of development space and time, we suggest that there is a need for approaches that can bypass the traditional differentiations that ascribe size to actors and classify them into micro and macro actors.

Within the developmental sphere, 'actor-oriented' approaches to development have existed since the mid 1980s (see in particular (Arce & Long 2000)). However, drawing on more mainstream explorations of the limitations of 'Newtonian' organisational approaches to management of complex situations (e.g. (Haynes 2003)), within development theory and practice there appears to be an increasing recognition of the limitations of traditional, top-down notions of agency as represented by 'logical framework' (logframe) style approaches, which are seen by some (e.g. (Breslin 2004; Mowles 2008; Mowles 2010)) as particularly unsuited to complex, socially emergent contexts such as those typically found in 'developmental' environments.

In turn, such questions have prompted renewed attention to an 'actor-oriented' dynamics of emergence (e.g. (Breslin 2004)), that highlight the complexity and uniqueness of the unfolding dynamics in which developmental actors are immersed, and the necessity of a more committed recognition of, and engagement with, these individual realities (Bithell et al. 2008). Finally, others (e.g. (O'Connell 2005)) have begun to explore the serious implications of such a stance on developmental actors for the discipline of developmental accountability. Whereas 'traditional' accountability frameworks prefigure outcomes in advance and construct accountability measures around these, more actor-oriented approaches stress the importance of orienting accountability around the exercise of individual judgement in the most effective delivery of developmental outcomes.

However, the actor-oriented approaches to development continue to face important challenges in conceptualizing the translation of actor-oriented practices into development policies and action plans. Providing a framework that reconciles the need to fix the scale of development actors for policy and planning purposes with the importance of taking into account the complexity and variability of their identities and realities is one of the main advantages that ANT offers to the conceptualisation of development action.

3. Actor-Network Theory

3.1. Origins and development

Actor-network theory is a collection of theoretical and methodological principles that progressively emerged from the field of 'science studies'. ANT's main concepts and propositions are dispersed in a large body of works by Bruno Latour, Michel Callon, John Law and many others. The theory has been used in many different, and sometimes contradictory, ways and in a variety of disciplines. ANT continues to draw increasing attention and mounting critique in fields such as information systems (Walsham 1997), organisation studies (Czarniawska & Hernes 2005), geography (Murdoch 1998), legal studies (Guggenheim 2010), architecture (Fallan 2008), and many others. However, ANT has not received as much attention in the field of

development studies, even if some of the information systems studies drawing from ANT are ones that involve case studies from developing countries (Heeks & Stanforth 2007; Stanforth 2006; Walsham & Sahay 1999; Braa et al. 2007; Macome 2008; Reinhard & Macadar 2006).

ANT's origins in the study of the "hard" sciences and technologies have arguably shaped its theoretical emphasis throughout its development. Indeed, many of the major works that have defined ANT were largely studies of science and technology, such as Latour's *Pandora's Hope*, *Science in Action*, and *The Pasteurization of France*, or Callon's seminal study of the domestication of scallops and fishermen in St Brieuc Bay. However, some of the later writings of ANT authors have expanded beyond the "hard" sciences, such as Latour's *Reassembling the Social* and Callon's writings in economics (e.g. Callon 2006). The expansion was however chiefly based on lessons learned from attempting to provide social explanations of scientific practices. Latour describes this progression in the following terms:

> *"ANT started with research into the history and sociology of science, tried first to provide a 'social' explanation of scientific facts, failed to do so, and then, from this failure, it drew the conclusion that it was the project of a social explanation of anything that was itself wanting"* (Latour 2003).

Social explanations are considered wanting largely because they employ constructed categories as facts of social settings, while ANT argues that these categories are most of the time what needs to be explained. To allow a reversal between what explains and what needs to be explained, ANT proposes an approach based on the rejection of two dichotomies in our perception of social actors and events: The first is the demarcation between the local and the global (or the micro and macro), and the second is the demarcation between the human (society) and the material (nature/technology).

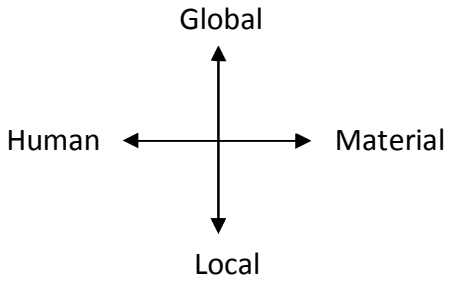

Figure 1: Two demarcations in traditional social analysis that ANT tries to address

Latour affirms that the main two arguments that ANT tried to champion are that:

> *"1) the nature and society divide is irrelevant for understanding the world of human interaction.*
>
> *2) the micro/macro distinction stifles any attempt at understanding how society is being generated"*
> (Latour 2001)

ANT tries to addresses the demarcation between local and global by proposing an ontology that aims to "flatten the social" and it addresses the demarcation between social and the material by adopting a 'generalised symmetry' principle. Addressing these two challenges simultaneously is an important advantage that ANT offers to the reconciliation of the different approaches to development space, time, and actors discussed in the previous section. The two principles suggested by ANT in this regard are elaborated upon in the following two sections.

3.2. Flat ontology

ANT proposes a social topography that can be considered "flat" because it rejects any a priori attribution of size (such as macro or micro, local or global) to social actors. Rather it suggests that actors are localized or globalized by the accounts made of them. According to Latour, "no place dominates enough to be global and no place is self-contained enough to be local" (Latour 2005, p 204). To avoid accounts which conceal the wide range of associations between actors, Latour puts forward an alternative ontology in which "macro no longer describes a wider or a larger site in which the micro would be embedded like some Russian Matroyshka doll, but

another equally local, equally micro place which is connected to many others through some medium transporting specific types of traces" (Latour 2005, p.176). However, this does not mean that the individual or the local becomes the site of all action, as even personal cognition is considered a "composite assemblage" of circulating elements (McGrail 2005).

In this approach, the global, the national, the communal, the organizational, and the individual levels are not considered concentric domains contained in each other, but heterogeneous networks of elements that become larger or smaller depending on the range of their associations. We are all aware of social settings and their associated accounts that make a company larger than a country, or an individual larger than an organization or a whole nation, simply by multiplying their connections with ideas, texts, technologies and people.

In this ontology, space and time are constituted differently. Space no longer represents that "inside which objects reside" but "one of the many connections made by objects and subjects"(Latour 2009). What ANT suggests is a shift of metaphor, from scale to network (Latour 1996). Networks, in the ANT use of the term, are not comparable in size so that one network would be bigger or larger than another, rather networks can only be compared based on the intensity and strength of their connections. These properties of the network metaphor make it particularly suitable for tracing the dynamics between the local and the global sites of action. Latour illustrates the advantages and the risks of the network metaphor with the following example:

> *The word network indicates that resources are concentrated in a few places – the knots and the nodes – which are connected with one another – the links and the mesh: these connections transform the scattered resources into a net that may seem to extend everywhere. Telephone lines, for instance are minute and fragile, so minute that they are invisible on a map and so fragile that each may be easily cut;*

> *nevertheless, the telephone network 'covers' the whole world.* (Latour 1987, p.180).

The network approach can be interpreted as primarily doing away with any presumption of '**containment**' between actors. In ANT, elements of the network are not "contained" in the network. Indeed, in the expression 'actor-network', the network is not meant to be a 'context' where the actors and their actions are embedded; instead, the network defines the actors. From this perspective, individuals would not be conceived as contained in groups, organizations in fields, actions in cultures, or texts in contexts. ANT suggests a shift from a conceptualization based on relationships of **containment** between actors to one based on relationships of **connection**.

3.3. Generalised symmetry

> *ANT is not, I repeat is not, the establishment of some absurd 'symmetry between humans and non-humans'. To be symmetric, for us, simply means not to impose a priori some spurious asymmetry among human intentional action and a material world of causal relations*. (Latour 2005, p.76)

The proposition that ANT is most renowned, and most criticized, for is the attribution of agency to objects. This rather daring suggestion is an application of the principle of 'generalized symmetry', which is an extension to the social epistemology principle of 'symmetry'. The principle of symmetry comes from the attempt by scholars of the sociology of scientific knowledge (SSK) to treat "scientific" and other types of statements in equal terms (Bloor 1999). Scientific propositions were not to be privileged because of claims to truth (through claims of correspondence with the world), rationality, or success (Pels 1996). For this end, the 'strong program' of SSK tried to extend the social analysis of scientific knowledge to the "hard" content of science. ANT authors took this principle a step further by arguing that a full symmetry should not give the language and categories of the social sciences, such as class, power, society, or culture, a privileged position either; they should be

deployed as explanations for neither the "soft" nor the "hard" aspects of scientific and technological activities.

ANT scholars argue that in order to apply the principle consistently, we need to redefine what we mean by the term "social". The main act of redefinition undertaken by them is the attribution of agency to objects. This implies that social relations and actions are not strictly determined by traditional social categories but are mediated through people, objects, and texts. For example, 'power', in an ANT account, cannot be used to explain the actions of the less powerful. Instead, ANT calls on the researcher to trace the heterogeneous networks of humans and non-humans through which power effects are translated. In fact, Latour considers that the very act of resorting to pre-existing all-encompassing social categories is what allows social explanations to do without objects:

> *As soon as you believe social aggregates can hold their own being propped up by 'social forces', then objects vanish from view and the magical and tautological force of society is enough to hold every thing with, literally, no thing.* (Latour 2005, p.70)

However, imbuing objects with agency is not meant to turn them into absolute sources of causality, which is then transported through human action. ANT calls for the material effects of objects and the intentional behaviour of people to be both analyzed symmetrically as part of 'translation' processes, in which "the identity of actors, the possibility of interaction and the margin of manoeuvre are negotiated and delimited" (Callon 1986).

The main analytical tool proposed by ANT for the application of the symmetry principle through the concept of 'translation' is the distinction between two types of actors: **intermediaries** and **mediators**. Intermediaries are "what transports meaning or force without transformation" (Latour 2005, p.39). Mediators, on the other hand, "transform, translate, distort, and modify the meaning of the elements they are supposed to carry" (ibid). Intermediaries can be complicated, but their output

remains a direct function of their input, while mediators are always complex no matter how simple they seem to be. A sophisticated machine can be treated as an intermediary if it is kept as a black box, while a simple road sign can be a mediator if all the agencies that it transforms or it substitutes are taken into consideration.

3.4. Translating ANT: From two dichotomies to two tensions

The last two sections presented the dual task that ANT authors set out to accomplish: to address at the same time and using the same language the two demarcations that, they argue, inhibit the expansion of social analysis: the local/global demarcation and the demarcation between the social and the material. In this section we propose a "synoptic" interpretation or a translation of the alternative approach suggested by ANT.

The ANT approach to social analysis seeks to replace the language of social accounts that draws from the two dichotomies of local/global and material/social by one that takes the four poles as outcomes instead of starting points. In this section, we suggest that ANT can be understood as suggesting a shift from an analytical disposition based on the two dichotomies to one based on two tensions: between presence and absence, and between stability and change [Figure 2].

ANT sees the construction of sociomaterial collectives as what gives them scale effects, as well as what categorizes them as either part of nature or part of society. Scale effects in the ANT approach are a consequence of the presence or absence of different connections in the networks traced by the actors and the researcher. For example, considering a site to be a global site is based on a perception that assumes other (local) actors too small to be present in the same account. Similarly, considering a site to be local is based on a perception that relegates other (global) actors to the background to form an invisible and absent "context". Therefore, the local-global dichotomy is largely an outcome of the tension between the presence and absence of various actors in our perceptions and accounts.

Likewise, considering an action or an interaction as purely social is based on the absence of objects in our conception and our accounts, and considering a relation or an effect as purely material is based on a conception that backgrounds or assumes the absence of human agency in the construction of material facts and the functioning of material artifacts. For example, a crime is seen as a purely social act if all the objects that facilitated the act are made absent from its accounts, and a machine is seen as purely material artifact if all the social interactions and conflicts that went into its design and adoption are made absent from our perceptions. Therefore, the social-material dichotomy can also be perceived as an outcome of the presence and absence of various actors in our accounts and perceptions.

The other tension that ANT's proposed approach highlights is between stability and change. ANT emphasizes how actors and their actions, as they get placed into one of the global/local or social/material poles, never reach full stability but are always part of unfolding processes that often foreground the entanglement between the local and the global, and between the social and the material. However, they need a certain level of stability to be perceived as actors. For example, a community or an organization that changes completely in the course of an action will not be perceived as the same actor. 'Actorship' in this sense requires some stability. What ANT emphasizes is that actors are always in a state of tension between stability that imbues them with identity and change that shapes their relations.

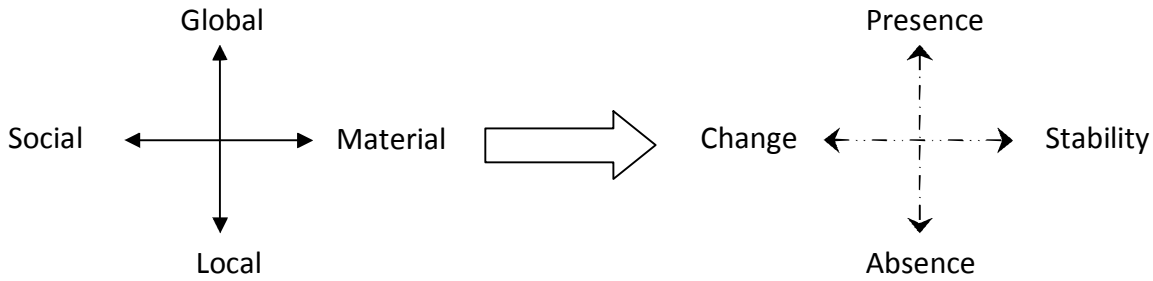

Figure 2: ANT's proposed approach: from two dichotomies to two tensions

In fact, the very expression actor-network, and its intentionally oxymoronic tone (Law 2008), highlights the tension between change, through the continuously

unfolding processes that ANT associates with the term network, and stability, through black boxing that leads various network elements to persistently act as one, in other word, to become an actor. In addition, the concept of "immutable mobiles," which Law and Mol (2001) consider as foundational to ANT, is meant to capture the tension between stability (immutability) and change (mobility).

The different ANT concepts discussed above are put together and superimposed on the change-stability and absence-presence poles in the diagram shown in Figure 3. Translation is described by Latour as the process that brings two actors to a situation of coexistence or co-presence (Latour 2005, p. 108). Whether local or global, conceptual or material, actors can only be part of a translation process if they are 'present' in a relationship. On the other hand, a diffusion process only requires the presence of the actor initiating the action, which travels through many, largely absent, other actors. In addition, mediators and intermediaries are both involved in processes of change, but the traces of the mediators as they transfer and transform force and action are visible and present in our conception, while the traces of intermediaries remain largely invisible and absent from our accounts. Similarly, actors and black boxes are both cases of relatively stabilized networks, except that with black boxes, other elements of the network are made absent from the action through the representation of a "spokesperson".

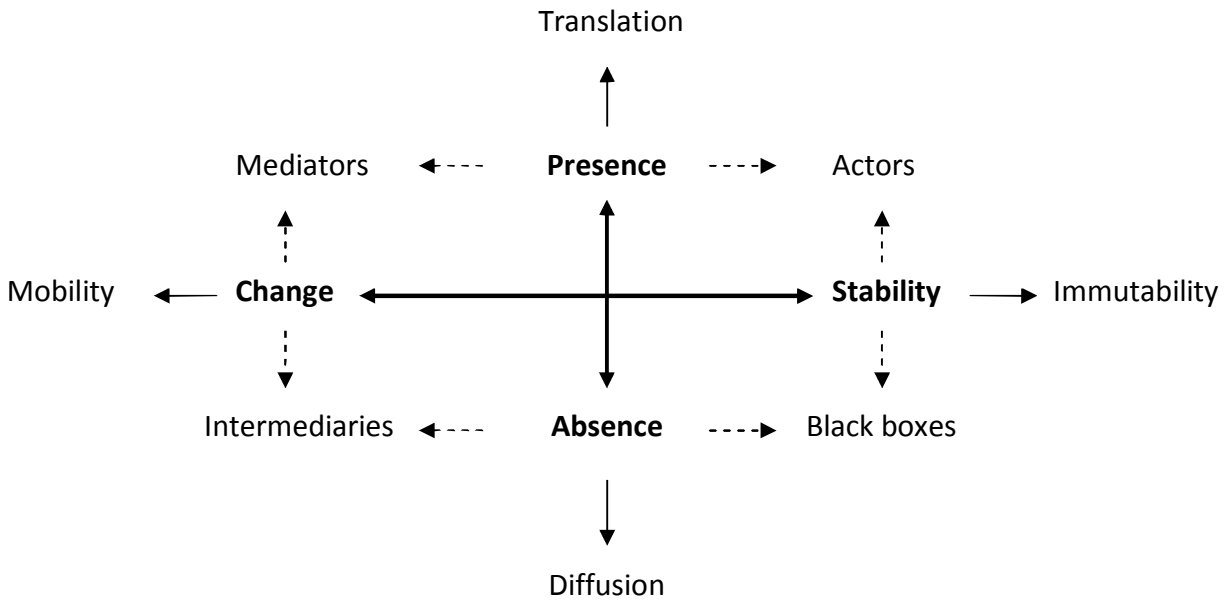

Figure 3: Mapping ANT concepts on the change-stability and presence-absence poles

The following section will discuss how these ANT concepts and principles can help in creating conceptual shifts that can be valuable in dealing with the plethora of dilemmas that characterize the development field.

4. Towards a New Conception of Development Action

4.1. Development spaces: from containment to connection

One of the main ways in which ANT can be applied to the study of development is in redrawing our conceptual maps of the spaces that define, and are defined by, development action. ANT proposes a relational approach that conceives of space as constituted through the networks of people, organisations, objects, ideas, and texts that shape the practices of development. In this regard, ANT is close to current thinking in human geography that suggests a view of space as emergent, always under construction, and always provisional. However, by shifting towards an ontology based on tensions, ANT opens the way for appreciating, within a relational perspective, the durability and stability of certain forms of space and to account for the dominant tendency in the professional practice and theorising of development to conceive of space as closed, stable, and as a container for development action.

One of the main propositions of ANT that can be brought to bear upon the task of reconceptualising development space is the rejection of containment relations between the different spatial domains, such as homes, communities, organizations[3], markets, countries, etc. Instead of viewing these spaces as stable and closed, hence prone to representations that embed one inside the other, ANT proposes a conception in which such spaces are viewed as continuously shifting networks of human, material and textual elements. This heterogeneity is emphasised equally for spaces that are traditionally considered to be global as those that are considered to be local. Accounting for the heterogeneity of spaces that have been classified as "local" spaces has been a challenge even for critical development theories (Schuurman 2009).

[3] Communities and organizations can be approached as spaces or as actors (Blaikie 2006).

Yet, spaces of development action are identified as such because they present a certain level homogeneity and stability that allow the bracketing of their transformations for policy and planning purposes. For example, markets, whether for international trade or in a village marketplace, are continuously changing spaces and exhibit significant variations within them, yet they maintain a certain level of stability and homogeneity that makes their representation in policy and practice possible. Development spaces are therefore always in a tension between stability that allows their representation and change that defines their existence. They are also in a tension between heterogeneity (the presence of a multiplicity of actors in their representation) and homogeneity (the absence of all except a few actors in their representation). In this sense, development spaces are shaped by the movements of what ANT calls immutable mobiles, elements that maintain a certain level of immutability but are still mobile through various domains. For example, a cast vote that moves from the individual choice of the voter to the local interaction of a polling station to national statistics is an immutable mobile that shapes the space of many modern nation-states. If the mobility or immutability of such elements is significantly hampered, the space can cease to be identified as such.

In addition, an important advantage of an ontology of connections as proposed by ANT versus one based on relations of containment is that it opens the way for alternative conceptualisations of spatial relations. For example, the dominant economic models that inform development policies and practices conceive of houses as embedded or contained in the abstract spaces of markets. In these models, houses represent one of several elements constituting the circular flow of the economy. Yet, as Escobar (1995,p.97) points out, these models are far from universal. He gives the example of the peasants' model in the Columbian Andes in which "the house is not purely a market participant." Rather, "peasants in this part of the world try to minimize their interaction with the market, which they see as a concrete place rather than an abstract mechanism".

As discussed earlier in this paper, many scholars have argued for a relational and emergent perspective of our "spatial imaginaries" of development places and

people. ANT can certainly be considered part of this argument. However, as opposed to many other approaches, it does not limit the construction of our spatial imaginations to discursive practices, but emphasizes how it is enmeshed in the materiality of development actions. For example, the radical shifts in how development work and research are carried out, which are induced by the rapid advances in information and communication technologies, foreground the entanglement of development practices with material instruments that increasingly mediate our knowledge and our actions.

In general, the rapid changes in institutional realities of the late modern period are redrawing the maps of development spaces, such as the maps of accessibility to services, the reach of political impact, and the scope of economic activities. The ANT approach highlights how these spaces are always in a tension between stability and change, between the stability of entrenched systems/models and the change imposed by the new modes of action. It also highlights how the development spaces exhibit a continuous tension over which places and actors are made present through these changes and which are made absent in the representations and conceptions of space.

4.2. Development timescales: processes of change and stability

Similar to its application in reconceptualising development spaces, the rejection of a containment relationship in ANT can also be applied to the perception of development times. A linear view of time perceives progress in the short term as embedded in the medium which is in turn embedded in the long term. 'Snap shot' representations are perceived in this view as defining the boundaries between given time periods. On the other hand, a shift to an ontology of time which is based on connections supports the stream of development thinking discussed earlier which reorients our attention to the present and sees many future possibilities and challenges as emerging in the action, not fully extrapolated from the past or planned in the present.

However, these open-ended approaches to the conceptualisation of development time face important challenges in accounting for the policy orientation and planning requirement of development action. In this regard, ANT suggests a conceptualization that highlights the tension between the need to freeze the representations of the future through policies and plans, and the continuous shifts in the conditions on which the representations are based. Each time period is viewed as a mediator that "transforms, translates, distorts, and modifies" realities as it transfers them, and not just an intermediary that transfers present and past realities to the future with no transformation. However, time periods transform realities through events and actions that require a certain level of stability to be present in our conceptualisations and our accounts. Therefore, in the ANT approach, the timescales of development are always in a tension between stability of reoccurring events and actions and the transformations that shape the unfolding of history.

These considerations, along with the general rejection of a containment relationship between the short-term and the long-term, have important implications for the question of sustainability, which usually seeks a compromise between the two timescales. Considering the short-term to be contained and embedded in the long-term leads to a taken for granted assumption that short-term support to the poor will automatically translate into long-term benefits. It can also lead to downplaying of short-term needs as ends in themselves by always treating them as means for other long term goals. In this regard, the ANT approach highlights the tension between the presence and absence of other timescales in the conception of development action as we orient our attention to one timescale for policy and action purposes.

4.3. Development actors: reversal of causality

One of the main contributions of ANT to the reconceptualization of development action is in offering an alternative approach to the conception of the relative scale of development actors. Viewing actors as defined by the networks of their relations avoids the essentialization of properties and ability to effect change. This perspective safeguards theoretically against viewing international organizations, for example, as

macro actors capable of transforming realities on the ground; it associates instead such capacity with the network of associations that shape the organizations, including the "capillary" connections that link them to seemingly micro actors.

In this sense, ANT contributes to the stream of development thinking that, in place of an ordered scale of developmental hierarchy in which the business case cascades from international donors through southern partners to a project manager on the ground, sees development as adaptive, networked, and empowering, and recognises that the optimum developmental outcomes may be unknowable in advance. In this approach, actors from different ends of the developmental scale do not exist with a set of ordered hierarchical relations, but are part of continuously shifting networks of people, objects, and texts, which bring them together in different ways at different times.

In turn, such a view of developmental actors as continually re-ordered within emergent configurations of space and time allows a more nuanced approach to the roles of developmental actors. In particular, it can help in facing many of the dilemmas presented by the question regarding the role of the intended beneficiaries of development in shaping the policies and projects that affect their lives. The proliferation of participative methodologies highlighted by Chambers (2010) is indicative of the centrality of this question to development work. The conception of these methods, which seek to facilitate people "to do things themselves," is highly dependent on our ontological assumptions about the scale and the scope of impact of the different actors involved in development action. They consequently imply a specific flow of causality between the actors, which often goes in the direction of decreasing scale.

Conceptualizing development action through ANT implies a rejection of any a priori attribution of scale to actors and opens thereby the way for a new understanding of the causal relations between development actors. The scale of actors is seen as an outcome of the tension between the presence and absence of different elements in the networks that define the actor's identities. An NGO for example is considered

"large" or "small" depending on the presence/absence of different people, objects, ideas, and texts in its various representations and its conception by other actors on the ground. The scale of actors in the ANT approach is also seen as an outcome of the tension between the stability and the change of such representations and conceptions. An organization that is perceived as a macro actor can cease to be so if the connections that give it its scale effect are severed. Similarly, actors perceived to be of micro proportions can increase their scale and become macro actors by extending their networks and expanding the scope of their actions' effects. The material and discursive constraints that stabilize the scale of actors by limiting the reach of their actions are part of the tensions that shape the perception of their relative scale.

A specific implication of conceptualizing the scale of development actors in terms of the tension between the presence and absence of other actors in their networks is the question of the role of objects, particularly technological objects, in shifting the perceived scale of actors. This question is a critical issue for development action, as Simon (2003) argues, "the technology-development nexus is complex and central to many contestations over development." Technology, in general, offers the capacity to transfer and transform human action and hence to extend the scope and reach of its effects. It is therefore an important means for shifting the perceived scale of human actors. In particular, information and communication technologies offer the capacity the stretch the effects of human action over time and space at unprecedented rates. The resulting shifts in scale generate variation and instability that is challenging for policy formulation and project development.

The ANT approach to conceptualizing the role of technology in shifting the scales of development actors highlights two tendencies. First, there are development approaches that tend towards emphasizing the presence of technology in the conception of developmental changes and that undermine as a result the role of the human actors in transforming technological systems when adopted and used. In these approaches, human actors are viewed as mere intermediaries transferring the capacities offered by the technology into their own domains of action, not mediators

who transform the meanings and the applications of the adopted technologies. At the other end of the spectrum are the approaches that tend towards the absence of technological systems in the conceptualization of development action. Such approaches include those that conceive of development work as channelled through purely social networks, those that view it as the result of purely political action, or those that conceive of it as the outcome of purely economic changes. These approaches are consequently unable to properly account for the shifts in scale afforded by technological systems in development work.

In general, conceptualizations of development action that view the scale of actors as constructed through the tensions of their social, economic, political and technological connections open the way for a better understanding of the divergence between the top-down approaches that tend to minimize the scale (and voice) of subaltern actors and the actor-oriented approaches that try to expand their scale, but struggle to do so. From the proposed ANT perspective, development policies and action plans from both approaches will always exhibit a tension between the presence and absence of the different actors in their formulations and between the stability and change of the presence. These tensions never get resolved through the continuous presence of all the actors, but through compromises and negotiations that address the requirement of fixity for representation and planning purposes and the need to account for the complexity and multiplicity of the realities on the ground. However, some development approaches and methodologies are better in striking a balance between these two requirements than others, and that balance is central to what policy formulation and project development should strive for.

5. Conclusion

This paper argues that ANT offers a promising approach for seeking alternative and deeper understandings of development action. It suggests the dilemmas imposed by the shifting scales of development processes as a particularly suitable area for applying ANT's ontological and methodological principles to the study of development. It thus suggests that the ANT approach offers a basis for studying development as a form of socio-material practice that is neither local nor global, that is temporally emergent, and that involves actors (e.g. individuals, organizations, technological systems) with complex and multiple identities.

The case for ANT in this paper is based on the assumption that the ability to deal with modes of acting that are non-standard, unordered, and unpredictable is more than an epistemological debate: it is increasingly a prerequisite for professional competence within the developmental sphere. The re-conceptualization of the spaces, times and actors of development opened by ANT offers a theoretical basis for understanding the contradictory requirements to harness this competence to deal simultaneously with the complex and shifting realities on the ground and with the stability and reduction required by policy formulation and project development.

References

Amin, A. & Thrift, N., 2002. *Cities: reimagining the urban*, Polity Pr.

Arce, A. & Long, N., 2000. *Anthropology, development, and modernities: exploring discourses, counter-tendencies, and violence*, Psychology Press.

Berkhout, F., Leach, M. & Scoones, I., 2003. *Negotiating environmental change: new perspectives from social science*, Edward Elgar Pub.

Bithell, M., Brasington, J. & Richards, K., 2008. Discrete-element, individual-based and agent-based models: Tools for interdisciplinary enquiry in geography? *Geoforum*, 39(2), pp.625–642.

Blaikie, P., 2006. Is small really beautiful? Community-based natural resource management in Malawi and Botswana. *World Development*, 34(11), pp.1942–1957.

Bloor, D., 1999. The Strong Programme in the Sociology of Science. *Scientific Inquiry. Readings in the Philosophy of Science (Klee, R., ed.), Oxford University Press, New York*, pp.241–50.

Braa, J. et al., 2007. Developing health information systems in developing countries: the flexible standards strategy. *Management Information Systems Quarterly*, 31(2), p.9.

Breslin, P., 2004. Thinking Outside Newton's Box: Metaphors for Grassroots Development'. *Grassroots Development*, 25(1), pp.1–9.

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

Callon, M., 2006. What does it mean to say that economics is performative?

Chambers, R., 2010. Paradigms, poverty and adaptive pluralism. *IDS Working Papers*, 2010(344), pp.01–57.

Czarniawska, B. & Hernes, T., 2005. *Actor-network theory and organizing*, Liber and Copenhagen Business School Press.

Doel, M.A., 1999. *Poststructuralist geographies: the diabolical art of spatial science*, Edinburgh University Press.

Fallan, K., 2008. Architecture in action: Traveling with actor-network theory in the land of architectural research. *Architectural Theory Review*, 13(1), pp.80–96.

Guggenheim, M., 2010. The Laws of Foreign Buildings: Flat Roofs and Minarets. *Social & Legal Studies*, 19(4), pp.441 -460.

Harvey, D., 1996. *Justice, nature and the geography of difference*, Wiley-Blackwell.

Haynes, P., 2003. *Managing complexity in the public services*, Open Univ Pr.

Heeks, R. & Stanforth, C., 2007. Understanding e-Government project trajectories from an actor-network perspective. *European Journal of Information Systems*, 16(2), pp.165–177.

Kapoor, I., 2005. Participatory development, complicity and desire. *Third World Quarterly*, 26, pp.1203-1220.

Latour, B., 2001. Gabriel Tarde and the End of the Social. In *The social and its problems, Londres, Routledge*. pp. 117–32.

Latour, B., 2003. Is Re-modernization Occurring-And If So, How to Prove It?: A Commentary on Ulrich Beck. *Theory, Culture & Society*, 20(2), p.35.

Latour, B., 1996. On actor-network theory. *Soziale Welt, Jg*, 47, pp.369-381.

Latour, B., 2005. *Reassembling the Social: An Introduction to Actor-Network-Theory*, Oxford University Press, USA.

Latour, B., 1987. *Science in Action: How to Follow Scientists and Engineers Through Society*, Cambridge, Mass: Harvard University Press.

Latour, B., 2009. Spheres and networks: two ways to reinterpret globalization. *Harvard Design Magazine*, 30, pp.138–144.

Law, J., 2008. On sociology and STS. *Sociological Review*, 56(4), pp.623-649.

Law, J. & Mol, A., 2001. Situating technoscience: an inquiry into spatialities. *Environment and planning. Part D, society and space*, 19, pp.609–621.

Macome, E., 2008. On implementation of an information system in the Mozambican context: The EDM case viewed through ANT lenses. *Information Technology for Development*, 14(2), pp.154-170.

Massey, D.B., 2005. *For space*, Sage Publications Ltd.

McGrail, R., 2005. Risky Maps for Contested Territories. *New Zealand Sociology*, 20(2), p.121.

Mosse, D., Cooke, B. & Kothari, U., 2001. *"People"s knowledge', participation and patronage: operations and representations in rural development.*, Zed Books.

Mowles, C., 2008. Finding room for values in required ways of working. In *Complexity and the experience of values, conflict and compromise in organizations*. p. 23.

Mowles, C., 2010. Post-foundational development management—power, politics and complexity. *Public Administration and Development*, 30(2), pp.149–158.

Murdoch, J., 2006. *Post-structuralist geography: a guide to relational space*, Sage Publications Ltd.

Murdoch, Jonathan, 1998. The spaces of actor-network theory. *Geoforum*, 29(4), pp.357-374.

O'Connell, L., 2005. Program accountability as an emergent property: The role of stakeholders in a program's field. *Public Administration Review*, 65(1), pp.85–93.

Padron, M., 1987. Non-governmental development organizations: From development aid to development cooperation. *World Development*, 15(Supplement 1), pp.69-77.

Pels, D., 1996. The politics of symmetry. *Social Studies of Science*, 26(2), p.277.

Pieterse, J.N., 2001. *Development theory: Deconstructions/reconstructions*, Sage Publications Ltd.

Power, M., 2003. *Rethinking development geographies*, Psychology Press.

Raynolds, L.T., 2009. Mainstreaming Fair Trade Coffee: From Partnership to Traceability. *World Development*, 37(6), pp.1083-1093.

Reinhard, N. & Macadar, M.A., 2006. Governance and management in the São Paulo Public Telecenter Network<FNR></FNR><FN>Shirin Madon was the accepting Special Issue Editor for this paper </FN>. *Information Technology for Development*, 12(3), pp.241-246.

Schuurman, F.J., 2009. Critical Development Theory: moving out of the twilight zone. *Third world quarterly*, 30(5), pp.831–848.

Simon, D., 2003. Dilemmas of development and the environment in a globalizing world: theory, policy and praxis. *Progress in Development Studies*, 3(1), p.5.

Stanforth, C., 2006. Using Actor-Network Theory to Analyze E-Government Implementation in Developing Countries. *Information technologies and international development*, 3(3), pp.35–60.

Swidler, A. & Watkins, S.C., 2009. "Teach a Man to Fish": The Sustainability Doctrine and Its Social Consequences. *World Development*, 37(7), pp.1182-1196.

Uvin, P., Jain, P.S. & Brown, L.D., 2000. Think Large and Act Small: Toward a New Paradigm for NGO Scaling Up. *World Development*, 28(8), pp.1409-1419.

Walsham, G., 1997. Actor-Network Theory and IS Research: Current Status and Future Prospects. *Information Systems and Qualitative Research*, pp.466-480.

Walsham, G. & Sahay, S., 1999. GIS for district-level administration in India: problems and opportunities. *Mis Quarterly*, pp.39–65.

Westley, F., Patton, M.Q. & Zimmerman, B., 2007. *Getting to maybe: How the world is changed*, Vintage Canada.