ISS

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OF BUTTERFLY WINGS AND RAISED FISTS: CONNECTING COMPLEXITY, AIDED DEVELOPMENT AND CIVIC AGENCY

Alan Fowler

Rector of ISS, colleagues, friends, ladies and gentlemen, a very personal welcome to you all.

An inaugural address is a moment for personal reflection. For me, it is a unique moment that is not 'business as usual', but a privileged opportunity to share new ideas and be challenged by your responses.

What follows draws on a long journey of conversations and many strands of thinking and enquiry about the way the world works and could better do so for all its inhabitants and subsequent generations. My central proposal is that the thinking and practice of aided development would benefit from dedicated attention to a body of ideas that constitute a theory of complexity. The challenge of this address is to make a convincing case for this point of view. Doing so relies on two arguments. First, that complexity analysis offers a coherent way for understanding and updating the uncertainties involved in social processes, aided or otherwise. Second, that this type of understanding can equip those involved in development work to be more effective at navigating through the turbulent, unpredictable world of aided change. Some proponents argue that complexity qualifies as a new paradigm for development (e.g., Rihani, 2005). Only time will tell. For the present, my approach is pragmatic. Let us engage by exploring what complexity does and does not have to offer development: in this case through the lens of civil society, civic agency and civic driven change.

The address winds along a path that resembles the game of snakes and ladders. From a starting point within development studies, ladders accelerate us forward to elements that arise in subsequent sections, while snakes feed back to illustrate or nuance previous ideas. In other words, this is an iterative story that reflects features of complexity itself.

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Part I locates the address within the area of scholarship known as development studies. This field is fuelled by debates that reflect contentions within social science that have a bearing on the story I am telling. Part II prepares the analytic ground by tackling the issue of complexity as a 'science', where the criterion of prediction is central. The result of this analysis leads to a proposition that complexity is a *systems theory of uncertainty* in social processes where the quest for stability is an important driver or force. Then, to reduce the problem of multiple interpretations, key terms and concepts associated with complexity are defined.

Part III, introduces the concept of society as a complex adaptive system with distinct, interrelated characteristics. To aid comprehension, other analysts make comparisons between simple, complicated and complex relational models. This method can be misleading. Care must be taken to ensure that comparisons are made between like and like. Doing so removes a confusing conflation of social and natural science examples. Part IV moves the complexity discussion into the aid system and identifies obstacles in doing so. Difficulties appear in institutional drag and professional scepticism, requiring a well considered strategy for engaging the development community in a complexity debate. This is followed by a description of the aid system with a first look at different degrees of uncertainty associated with sectors of health, education, agriculture and governance. Part V, moves to application. It discusses civic driven change and links to complexity through civic agency. There fact that civic agency is not located in any particular institutional domain is highlighted and two brief cases are used to illustrate this point. Finally, Part VI provides five arguments in favour of applying complexity theory to aided-development, with suggestions about where further effort is merited

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I

LOCATING THE STORY

A central question within the original context of development studies is 'who wins and who loses from change in society, how, why and what are the transmission mechanisms in play over time? Since the advent of aided-development, answers to this question have been dominated by discourse and metrics of economic growth which, as Joseph Stiglitz (1998) pointed out, became the ends rather than the means of improvement in human well-being. Pulling many nongovernmental organisations (NGOs) in its wake, despite participatory language and people-centred attempts, mainstream development remains characterised by econometrically modelled, elite-based, targeted, supposedly apolitical, technically specialised and professionally sectoralised thinking and practices. The development enterprise has still not learned how to substantively embody and empower those whose existence justifies its investment – the poor.

Perhaps this outcome is not so surprising. Official aid has always been more or less of geo-political instrument for giver and receiver. Overt measures of development performance – with either economic or human measures - were never the determining yardstick for macro aid allocation. Politics was and remains so. However, the interregnum between the collapse of the Soviet Union and attacks by al Qu'aeda, gave a window for primacy of moral motivations and for efforts to structurally tackle systemic shortcomings detailed by Roger Riddell (2007). But, this was not to be. Incremental, technical improvements, such as those agreed in the Paris Declaration, remain the name of the game.

However, while who wins and who loses is not forgotten, economic metrics and developmentism itself are now being more broadly challenged than from the ideological left or right of old. In the view of John Rapley (2008), origins of such a shift are to be found in an anti-universalistic, post-modernism as well as from a reversion to local traditionalisms. These perspectives force attention to both transnational and decentralised forms of resistance and contestation of being incorporated into a global liberal economic order with aided-change as its hand maiden. They also provide markers for a more antagonistic view of development studies voiced by Mohan and Giles (2005), who call, amongst others, for greater interdisciplinarity and openness to plural rationalities for knowledge production, rather than an over-reliance on positivism. To different degrees, arguing for a complexity point of view reflects these critiques.

Meanwhile, on the ground and alongside humanitarian help in conflict settings, today's aid system shows a fixation on strengthening the (failed) governance capabilities of state institutions within the political (security) demands and parameters of market-constrained sovereignty. In doing so, yet again, poor and ordinary people are being subordinated to states and markets as 'adequate interpreters' of their aspirations, interests and preferences.

This obstinate history has not gone unnoticed. The need for a 'new' development paradigm has been championed from many quarters and ideological positions. Such efforts have been seen, for example, in public campaigns that '50 Years of the World Bank is Enough' by 'non-reformist reformers'. These protagonists argue that social injustice and deprivation stem from the very self-regulated liberal economic model on which aid rests. QED, aid cannot be the solution to the problem of poverty and exclusion. Instead, it acts as a palliative instru-

ment of containment which serves the already powerful 'givers'. On the other hand, the choice for 'critical engagement' pursued by 'reformist reformers' also seeks social justice, but does not challenge the fundamentals of the economic model currently shaping (the politics of) an interdependent world order.[2] For them, the present economic system – and its dysfunctions - can be and must be better 'governed' for the good of all. Such contending 'reformers' correspond to distinct 'political projects' (Dagnino, 2008) defining what society should become and how to get there.

However, both reformisms share a common premise and requirement, namely, that polities' exercise adequate control over the tiered forces that co-determine their lives. In other words, both political projects must address the issue of attaining a political configuration that confers adequate citizen control over state power - the central principle of a democratic order. This requirement must be satisfied under conditions of globalising inter-dependence. I will explore this theme from a challenging angle – complexity – and within the purview of change driven by citizens. In short, a major thrust is to investigate complexity as a 'model' to better reflect on bringing citizens back into development as agents of their own change.

The first step needed is to be clear about what is meant by 'complexity'. This takes us into a short historical journey which involves debates about what science is all about.

II

COMPLEXITY - PREPARING THE ANALYTIC GROUND

You can count the seeds in a fruit,
but you cannot count the fruits in a seed.
                                        African proverb

Like many innovations in ways of thinking about the world, complexity exhibits growing pains of clarity, confusion, resistance and enthusiasm. This part of the address focuses on two sources of difficulty in discussions about complexity in terms of substance, while Part III will look at application and usefulness. Here, we first tackle the issue of complexity as a 'science'. Then we clarify key vocabulary and language. However, a necessary preliminary step is to introduce the bare bones of 'complexity' in relation to society that are later dealt with in detail.

Though contested by some analysts (e.g., Mowles, et al, 2008) complexity is commonly described as a *property of a system* with a large number of elements or actors, such as people, interacting in ways that do not allow for certainty about overall outcomes at any moment in time or place. Uncertainty has many roots. One is the 'emergence' of unexpected conditions that cannot be anticipated by or reduced to the 'addition' of individual interactions. Another factor is contingencies affecting the process of interactions. Yet another source of uncertainty is limits to what is known or knowable.[3] These and other sources play out in alls aspects of life. Yet, societies show that, to varying degrees, it is possible to cope with uncertainty. This capacity is traced, amongst others, to human predispositions

and abilities, particularly through language, to self-organise (e.g., Waldrop, 1992).

Such a human capability becomes 'attracted' towards the evolution of social configurations that help attain and retain stability. They continue to do so as internal and external circumstances change and inter-penetrate each other. Which configurations appear and when stem to a large degree from feedback as processes which co-determine if experiences of interacting are repeated, enhanced and become normative or are eventually discarded. Human interaction requires energy. Consequently, rules, conventions and reliable patterns of relations which reduce transaction costs or energy 'losses' tend to gain favour. In popular books and with media hype, complexity is explained in a positive way as a dynamic responsive, adaptive and stabilizing attribute of societies that to greater or lesser degrees all teeter on the 'edge of chaos' of entropy-driven forces of disorder and anarchy (Lewin, 1993).[4]

The general point is that, compounding the vagaries of nature, uncertainty is inherent to the myriad connections between people as they go about their daily lives. Complexity is a way of 'labelling' and understanding this social experience. This does not mean that life is completely random or that change through human agency cannot be planned for or pursued. But it does mean that there are limits to what can be realistically expected of putting plans into practice. And, limits tend to grow as the scale of human agency and time horizon extend, which increases the demand for ongoing reappraisal and adjustment. It also means that societies that (continually) reduce the costs of remaining stable are likely to do better for their constituents. This ability is tied to gaining adequate conformity which, in turn, is premised on the acquisition, distribution and exercise of power, a factor developed later.

From this brief introduction of complexity, we can enter a discussion about its acceptance as a theory and, if so, of what?

Complexity as a Theory

Definitions of what is or is not a 'scientific theory' often revolve around differences of opinion about criteria related to what a 'science' should be able to do and how it should go about doing it. The initial Newtonian, deterministic view of science was premised on immutable, universal laws with logical, reliable relations between cause and effect. Initially, it worked well enough in defining three criteria for a 'science', namely accurately and 'truthfully' *describing*, objectively *explaining* and accurately *predicting* phenomena based on rigorous and repeatable methods of observation and measurement. Physics became a <u>de facto</u> normative role model.

In this view, to qualify as a 'science' the most critical test of a body of knowledge and assumptions gained through rigorous observation is that of prediction associated with parsimony. This process and principle involve reduction of objects, phenomenon and so on to their smallest constituent parts to better identify their individual characteristics. This step enables a search for a minimal number of assumptions in the laws operating on and between them. Reductionism also permits generalisation to higher order, more encompassing, explanations: for example, that people's behaviour can be explained in terms of preferences and economic utility. Determinism - prediction with certainty - and reductionism –isolation of fundamental elements of a phenomenon – are defining features of a Newtonian logic which deeply inhabits a modern world view and values well as the social expectations and technologies it gives rise to.

Since Newton, methods of physical measurement and observation improved. In the early part of the last century, it appeared

that there was a predictive limit even within physics. The Heisenberg principle of uncertainty and advances in theories of quantum mechanics 'demonstrated that some phenomena are probabilistic' leading some scholars "…to consider this a paradigm shift in the natural sciences" (Rihani and Geyer, 2001:238). However, a psychological aversion to acknowledging the role of chance or uncertainty in life and the 'politics of promising a future' obscure the significance of this shift for understanding the world.

It can be loosely argued that, as a scientific knowledge category and site of dedicated enquiry, complexity arose when the opening of a non-deterministic window in physics combined with observations made by Edward Lorenz in prediction-analysis of weather as a dynamical physical system. He was struck by the way that variations in weather are extremely sensitive to initial conditions and exhibited non-linear effects. In systems with a mass of connections between elements, small changes can lead to unanticipated and major alterations in behaviour of the whole.

The advent of increasingly powerful computers enabled the myriad calculations involved in such analysis to be undertaken, bringing with it screen visualisations and a popularized notion of a 'butterfly effect' alluded to in the title of this address.[5] In moving its wings, a butterfly causes minute changes in local air flow and pressure that may or may contribute to (rapid) shifts in trajectory or scale of change in the weather experienced elsewhere at any time in the future. The same physics holds true for the raising of a fist. It is the potential for complexity to connect air displacement across the globe due to both natural and social processes that underlies the title of this presentation.

As a distinct knowledge arena and intellectual preoccupation, complexity has 'migrated' from natural to social sciences. Such migrations, confront old and new debates about the 'transportability' of theory, criteria, language and concepts from one to the other. These debates require our notice in order to 'relocate' complexity from natural science origins.

The philosopher of science, Sir Karl Popper, examined the application of 'naturalistic' methods to social sciences. He doubted that historical prophecy was a task of social science (1957:12). And, he went on to argue that if the principle goal of 'historicism' in social science is to discern "…the 'rhythms', 'patterns', 'laws' or 'trends' that underlie the evolution of human history in order to predict the course of the future" (ibid:3), its attempts will be flawed if 'naturalistic' methods, properly understood, are not applied (ibid:94). He systematically addresses historicists' arguments against applying natural science principles and methods of enquiry to social phenomena and theories. Where methods of natural science enquiry are not in play to generate knowledge about social phenomenon, Popper argues for the use of terms such as 'forecast' or 'prophecy' rather than prediction. This permits for lack of precision and a degree of useful vagueness.

Since his writing, the terrain of social science has become populated with contending theories and 'post' reactions to them. Much historicist argumentation criticised by Popper resonates with post-modernity, which stresses the temporal, spatial and cultural singularities of knowledge and truth. What can be 'objectively' observed must be 'subjectively' interpreted. Multiple, local narratives generate knowledge – science has no monopoly and does not constitute all that is known or knowable. Common within this analytic frame is a reaction against universalism of Western thought, accompanied by deconstruction of text to expose normative underpinnings.

Accompanying, but distinct from post-modernity, is a body of social science thinking driven by post-structuralism – an analytic school that accords greater value to human agency in creating and changing social relations and the meanings deeply embedded in acculturation. Such reactions to modernism and structuralism are themselves subject to criticisms that are beyond the scope of this paper to explore.[6] The point is that they create the intellectual lattice underlying efforts to locate complexity as a theory.

Critical points of reference lie in contention over the nature and generation of knowledge; in the possibility of 'objectification' of enquiry where signifier and signified are interdependent; in verifying the 'truth' of any description of social phenomenon; between linear-deterministic and non-linear, non-deterministic assumptions about social processes; and in disputes about methods of enquiry and the power inherent to them. Stemming from a realist science perspective, Byrne argues that these contentions can be treated as explicitly dialectical: linear, reductionist origins are thesis and postmodernity and post-structuralism are twinned antithesis, with complexity as synthesis (Byrne, 1998:45). A dialectic dimension to social complexity is also identified by other analysts (e.g., Cole, 2003:331).

Within this arena of propositions, conjectures and refutations, complexity analysis is seeing increasing application. Examples are to be found in the fields of economics (Anderson, et al, 1988; Beinhocker; 2006), organisation and management (Wheatley, 1994; Axelrod and Cohen, 2000), politics (Kollman, et al, 1993; Suteanu, 2005), knowledge generation and learning (Stacey, 2001; Surowiecki, 2004), public health (Sterman, 2006; Millstein, 2006), international relations and globalization (Cole, 2003; Chesters, 2004; Urry, 2005) and development studies (e.g., Rihani and Geyer, 2001; Rihani, 2003, 2005; Campbell,

et al, 2006; Ramalingam, et al, 2008; Mowles, et al, 2008). Implicit or explicit theoretical positions to be found in these works reflect the diversity and contentions sketched above, but all are connected by struggles to make practical sense of non-deterministic processes. This commonality invites a theoretical proposition about complexity in its own right.

The roots and history of complexity thinking and application shows a pathway that evolves from but does not subsume preceding stages. It starts from Heisenberg's discovery of indeterminism in physics, moves through mathematical modelling of chaos, to non-deterministic properties of self-organisation exhibited in genetics and evolutionary biology, to understanding non-linearity in social phenomenon and their change. Each facet of 'migration' is concerned in some way with uncertainty of process outcomes. This commonality points to a 'predictive paradox'. Complexity provides a theoretical grounding for better understanding, explaining and gauging limits to prediction for solving social science problems. By logical inversion, as a dialectic synthesis proposed by Byrne, complexity can be hypothesized as a *theory of uncertainty* in social processes. This theorizing is gaining sociological ground in terms of the asymmetric association between uncertainty and risk (e.g., Zinn, 2008). That which is uncertain is not necessarily risky. But, what is risky always contains an element of uncertainty.

For the present, it is sufficient to state that accurate prediction is not an attribute of complexity as an analytic lens. But, I will argue, that what stands in the way of reliable predication is precisely what makes complexity worthy of 'developmental' attention. A potential value of complexity as a theory of uncertainty could be found in (1) formulating enquiry with the 'right' level of parsimony and positioning between what is universal and what is particular or local. This value can assist in (2) establishing meaningful boundaries and ques-

tions within a 'holistic' appreciation of social processes. Such a pragmatic location acknowledges that human agency is a critical, reflexive co-determinant in bringing change in society towards imagined futures. But that there are constraints to action as well as limits to the certainty of attaining anticipated outcomes.

> "This is both more modest than a paradigm shift, or a shift between modern and post-modern science, and yet more troubling because it starts to break the ways in which the positions of knower and known are constituted. Rather than a shift in world-views, from a world of mechanical causes and effects to a world of complex instabilities, events and bifurcations, *what counts as the right question to ask, as the most relevant way of posing problems, changes.*" (Cilliers, 1998:48, emphasis added)

An ability to realise these potentials for and beyond aided-development will depend, in part, on clarity about concepts and terminology.

Transportability of Language

In keeping with other abstract concepts, communication about complexity requires clarity about meanings and their interpretation. Popularization of the term makes this particularly pertinent for complexity as a 'transported' concept.

> "… Stengers asks: how can we use complexity without turning these ways of thinking into a world-view, that is, without feeling authorized to generalize? The generalization of complexity into a world-view turns thought in circles on itself. It becomes a movement that goes nowhere because it encounters no obstacles and takes no risks: 'everything is complex'". (MacKenzie, 2005:38)

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One part of a pathway to a solution is to precisely define complex social phenomena by identifying distinctive attributes. Another is to compare it with other categories of social process. This sub-section concentrates on the former in relation to five properties associated with complex social systems driven by human agency (e.g., Cilliers, 1998:3-5 and 119-123). Our purpose is to home in on terms that may be familiar in other contexts or less familiar but critical for understanding complexity of society. The terms are: actor, emergence, attractor, recurrency and project.

Actors are people with a range of potentials and predispositions that guide their (in)action. They operate under varied conditions of capabilities and freedoms to undertake agency – that is:

> "…the temporally constructed engagement by actors of different structural environments – the temporal-relational contexts of action – which, through the interplay of habit, imagination, and judgment both reproduces and transforms these structures in interactive response to the problems posed by changing historical situations". (Emirbayer and Mishe, 1998:970)

In this view, agency is the interplay between: (1) past routine, experience and learning, energised by (2) images of a desired future situation, which is then (3) situationally-judged for achievability and risk, from which action may or may not be taken. Inaction is also an action.

Emergence is captured in the adage 'the whole is more than the sum of the parts'. It signals that something new or unexpected can arise when physical or social elements are combined. What emerges cannot be predicted from attributes of the elements concerned. For example, properties of water – freezing,

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flowing and steaming and an ability to put out fires –cannot be anticipated from the properties of hydrogen and oxygen as constituent parts. In society, emergence is seen in features of life, for example, in the history of urbanization (Johnson, 2001). Over long history, networks of settlement and towns appear spontaneously, their shape and form determined by interplays between topography, demography, defence and economics long before 'planning'. What arises in time and place is a self-organised geographical hierarchy and provision of good and services. A sort of natural (re)distributed specialisation arises, which ebbs and flows with market forces fashions and innovation in technology. Low cost housing projects evolve from sought after homes into ghettos from which gangs and gang culture arise. Emergence of the unexpected, the unanticipated, the unplanned is a distinctive feature of complexity in action. In the image of John Casti (1994), complexification is the 'Science of Surprise'. An explanation with careful observation and hindsight is often the best we can do to understand emergence.

An *attractor* has a particular meaning and role in complex systems. As the name implies it has the effect of 'pulling' behaviour towards it. Gravity as an all pervasive force is a natural science equivalent. In social systems, an attractor's effect is to 'guide' people's behaviour and interactions from which self-generated patterns emerge. A simple, single point attractor is, for example, a rubbish bin. People with something to get rid of are 'pulled' towards it. Another type of attractor is periodic. It is seen in a natural 'search' for interactions that, for example, reduce costs and expenditure of energy to achieve a particular outcome. Optimizing a route taken as traffic conditions unexpectedly alter reflects such an attractor. Successful repetition builds confidence and trust, which reduces transaction costs over time.[7] This attractor gives rise to configurations of personal economic relations that scale through to the

shaping of global markets. Microscopic economic interactions give rise to macro-economic phenomena that, in turn, can affect the original micro-economic behaviour in a never ending back and forth. The virtual collapse of global banking is a recent example explored later.

A third type of attractor is known as 'strange' in that it involves simple deterministic rules that, nevertheless, produce indeterminate results. For example, the rules of tennis are clear. But the results of a match are not known until it has been played. Each player learns from the play of the other and adapts his or her strategy accordingly. But this process must be iterative in response to the response of the opponent, where slight differences in play at different stages can give a distinctive edge or none at all. In team sports, like football, the same iterative process is involved. But added to the uncertainty mix are (abilities of) cooperation between team members as well as competition with the opponents and the possibility of a draw (zero sum result) as well as win or lose.[8] Seemingly straight forward transactions like shopping, or worshipping, or cooking or eating are played out in the daily life of six billion people every day. But these simple acts are sociological events with attractors of, for example, status and control. These attractor effects are seen in the conventions, (codified) rules and rituals they give rise to. Strict adherence to conventions about food in the Indian caste system is one example, buying branded clothing in order to 'belong' to a group is another. The presence of a sociological attractor is informed by recurrency.

Recurrency is a looping back of experience of transactions in ways that reinforce (positive) or attenuate (negative) transaction decisions next time around. Feedback is a critical factor in self-regulation. Depending on feedback, social systems can become highly unstable. Until blocked by international action, positive feedback in the value of blood diamonds helped feed

and sustain wars in West Africa. But blocking feedback can keep societies stuck in conditions that reduce 'fitness' as the environment alters. An example is autocratic politics that deny access to information or giving voice which can stifle an ability to change. Feedback can also help society to adjust by iteratively feeding information about the environment into the system as well as information about results of the system's action on the environment. Mass media can function in this way.

Projects cast something forward. This can be in real time, such as projecting an image on a screen, or, in psychology, attributing features of self and values onto another. Reflecting post-modern analysts, this is an inherent and dangerous feature of post-colonial cross-cultural relations critiqued in the Orientalism of Edward Said (1994). As alluded to previously, 'political projects' are comprehensive images of what a society should become and how to get there. The scales of time and effort are typically large, frequently with processes that are conflictual and contested. In development work, projects are often the basic unit of a problem-solving programme or intervention. They are constructed as time+resource+activity+actor bound packages, designed on the basis of achieving pre-defined results resting on a Newtonian logic. Uncertainty is assigned to an assessment of the criticality of assumptions and estimates of risk. But the latter are seldom realistically framed as this would reduce the potential for financing. Projects of this type are most amenable to localised, small scale, short-term changes in physical conditions. A fourth understanding of a 'project' is found in human agency. People establish individual and collective 'projects' to achieve the futures they imagine and aspire to. With these comparisons, it is obviously important to be clear about which view of a project is in play.

This section established complexity as a body of knowledge and ideas offering a dialectic synthesis of contending social theories. It also set out key terms and vocabularies. From this grounding it is now possible to move forwards into what this conceptual framework might mean for analysing and understanding society.

III

COMPLEXITY AND SOCIETY

"The first step to the understanding of men is the bringing to consciousness of the model or models that dominate and penetrate thought and action."

Isaiah Berlin[9]

As noted above, complexity is being applied in many areas of social activity. Politics, management, economics and many other fields are now being looked at through a complexity lens. In common is their treatment of society as a model known as a complex adaptive system (CAS). What this means is described in detail because of its importance as a point of reference for application to aided change. The approach is to, first, summarise what a CAS looks like in terms of defining characteristics. It then draws on and critiques 'clarifying' comparisons made between simple, complicated, complex and chaotic conditions based on more or less clear relations between causes and effects. My basic argument is that comparisons employed rely on examples and analogies that conflate natural science and social science processes that need to be pulled apart. Once this is done, there should be less confusion about taking a complex view of development as a social undertaking.

Society as a Complex Adaptive System

> "A family of nonlinear systems attracted the attentions of scholars as potentially useful tools in analysing natural and social phenomena. They are variously described as being complex, because they have numerous internal elements; dynamic because their behaviour is governed by local interactions between the elements; and dissipative, because they have to consume energy to avoid drifting from self-organization into chaos. When such systems are capable of evolution they are also known as Complex Adaptive Systems." (Rihani and Geyer, 2001:239)

Paul Cilliers provides a list of the major characteristics of complex adaptive systems, then illustrated in relation to people as economic agents (1998:3-7). The primary features he highlights can be condensed and summarized as follows.

1. A complex system is made up of a *large number of elements* that interact in a dynamic way what does not necessarily require physical contact: *information* transfer can also be in play.

2. Interactions are fairly extensive – *elements are influenced by many others*.

3. Interactions have particular pre-requisite characteristics in being: *non-linear* – small changes can have disproportionately large effects and visa versa; and *act over a short range*, albeit subject to more distant influences that can be modulated, that is amplified, suppressed or altered in various ways.

4. There is recurrency, or positive and negative *feedback* between the elements – both are required- that can operate directly or via intervening stages.

5. *Complex systems are typically open* - in other words they are in interaction with a wider environment – where boundary setting, or *framing* – is usually determined by the *description*, or purpose of the system of interest.

6. Complex systems operate *far from equilibrium* with a constant flow of *energy* to ensure survival. "Equilibrium is another word for death." *Asymmetry* within and between elements is a defining feature.

7. The past is co-responsible for present behaviour: *time* is a critical dimension of in a diachronic process that continually contains prior *history* in any current state.

8. Behaviour of the whole of the system is not 'known' to any individual element and its *structure* is the emergence of complexity from dynamical *patterns* of interaction between the elements.

Together, these features generate the propensity for self-organisation distinctive to human history. The potential power of a complexity lens stems from its ability to generate knowledge about what is involved. While some features may be familiar, such a technical description is often difficult to comprehend and envisage in daily life. In addition, using this sort of list depends on the 'distance' one takes, i.e., the level or scale in play and amount of detail required. One way of providing practical clarity is to compare complexity with other types of process shown below.

Understanding Complexity by Comparison

Comparison is often a powerful way of examining a topic. However, here I will argue that comparisons employed to better understand complexity are 'helpfully misleading'. Real life examples are useful, but can be misleading if the comparisons are not like-with-like. This is a natural danger when both natural science and social science are in play and complexity is said to be a paradigmatic breakthrough or 'unifier' of this schism (e.g., Lewin, 1993). This point is illustrated through two examples from current literature.

Table 1., is a step towards clarification by comparison. In this type of analysis, what is considered to be complex is positioned in relation to other types of systems with interactions premised on different cause-effect relationships. The abstraction/reductionism involved in this form of clarification can be applied to both natural and social systems.

However, unless like is compared with like, problems can arise when clarification is made concrete by using practical cases. An example is to be seen in Table 2., which, for our purposes, does not require chaos as an interaction type.

Columns one and two illustrate a mechanical/Newtonian optic on complexity. In a clear distinction, the example in column three is decidedly sociological. Complexity, as theory of uncertainty in sociological processes requires consistent non-deterministic comparisons. Using the same problems, Table 3., does so.

Table 1 Comparison of system-type attributes

| | Interaction | | | |
	Simple	Complicated	Complex	Chaotic
Transaction Attribute	Direct cause-effect	Multiple cause-effects	Recursive / Emergent Cause-Effects	Random cause-effects
Knowledge	Known	Knowable	Understandable with observation	Unknowable
Predictability	Predictable	Ascertainable	Non-predictable but patterned	Unpredictable
Intervention Result	Certain outcomes	Anticipated outcomes	Unexpected outcomes	Indeterminate outcomes

Table 2.   Examples of Simple, Complicated and Complex Problems

| **Simple** *Following a recipe*	**Complicated** *Sending a rocket to the moon*	**Complex** *Raising a child*
The recipe is essential	Formulae are critical and necessary	Formulae have a limited application
Recipes are tested to assure easy replication	Sending one rocket to the moon increases assurance that the next will be OK	Raising one child well provides experience but no assurance of success with the next
No particular expertise is required but cooking expertise increases success rate	High levels of proven technical expertise in a variety of fields are necessary for success	Expertise can contribute but is neither necessary nor sufficient to assure success
Recipes produce standardized products	Rockets are similar in critical ways	Every child is unique and must be understood as an individual
The best recipes give certain results every time	There is a high degree of certainty of result	Uncertainty of result remains

Source: From Glouberman and Zimmerman, 2002.

Table 3. Sociological Comparisons of Table 2.

Simple	Complicated	Complex
Following a recipe	*Sending a rocket to the moon*	*Raising a child*
A recipe assumes a cook's ability to access the same quality ingredients every time.	Processes minimize the chance of human error.	Formulae have a limited application
Consistent results may not be consistently appreciated by all consumers.	Repeated success or failures are counted for or against the individual(s) concerned, affecting professional status and prospects.	Raising one child well provides experience but no assurance of success with the next
There is uncertainty about the recipe's efficacy for producer and consumer.	Prior to completion and evaluation of the mission, there is personal and collective uncertainty about what results will mean.	Expertise can contribute but is neither necessary nor sufficient to assure success
		Every child is unique and must be understood as an individual
		Uncertainty of outcome remains

The point is that, from an actor perspective, uncertainty in some form or other remains to some degree. Each typology contains complex elements. So, while a comparative categorization can be helpful in understanding complexity in action, it is important not to (inadvertently) range across natural and sociological examples in doing so. Otherwise, there is a danger of complexity becoming the theory of everything.

A similar comparative approach to locate and understand complexity, but with a cognitive point of entry, is provided by the Cynefin Framework (Snowden and Boone, 2007). Here, an actor's 'reading' of the context, problem and solutions are central. The anticipation is that with this type of understanding problems can be better delineated and appropriate interventions and management methods can be applied. This modelling rests on 'multi-ontological sense making' (Snowden 2005).

Figure 1. Locating Complexity (the Cynefin Framework; www.cognitive-edges.com)
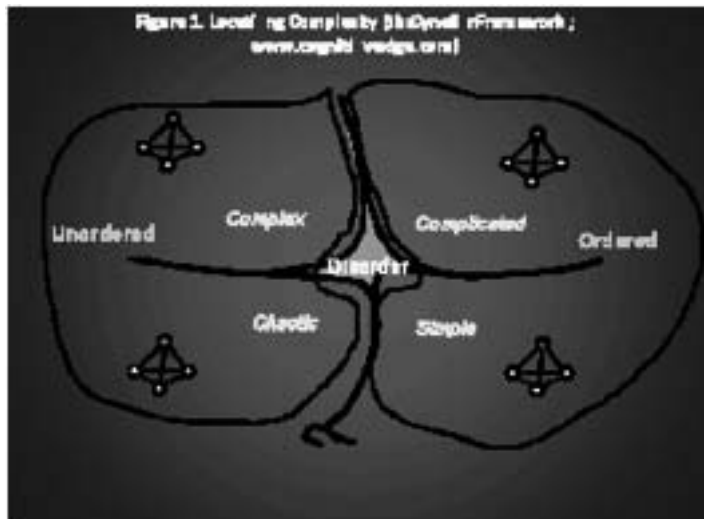
More simply put, what needs to be appreciated in a particular situation and problem-setting has many origins and points of reference. Each is useful in its own right. However, they must be carefully combined in relation to different degrees of complexity in terms of the (non-) linearity of cause and effect relationships in play.

In this sense, complexity also applies to what are perceived to be simple or complicated processes, which is confused by Cynefin's diagrammatic representation. It implies that there is a separation between the three. But complexity theory is built on the observation that much that is simple and relatively certain can build up and interact in ways that lead to emergent processes and institutions that introduce greater uncertainty. The recent banking collapse is illustrative.

It all started with people putting money in banks that were sustained by lending it out with interest. From this simple principle emerged the – now dead or dying - non-deposit holding investment banks and 'self-regulated' financial markets. In the process, dependency became reversed. The bank did not 'need' people's money to make money. But society as a whole needed the financial system to work because it had become 'too big to fail'. Sophisticated and complicated instruments, like collateralised debt obligations (CDOs), obscured debt and entangled inter-bank relationships into complex connections with hidden risks. This condition brought the whole to the edge of collapse with the potential to trigger social and political chaos. Simple, mechanised money transactions were connected and nested within tiers of inter-dependent relationships and not immune from their behaviour.

In this case, using the eight characteristics described above, a brief, illustrative complexity analysis would point to uncertainty to the edge of collapse stemming from:

1. *Information:* Poorly understood and wilfully obscured information about the risk being transported between multiple, widely distributed agents, abetted by conflicts of interest within rating agencies.

2. *Influences:* Reliance on pumped-up assumptions about levels of economic growth in the recent past supporting increases in house prices.

3. *Range of action:* Myriad local loan transactions based on lax lending conditions and volume-sale incentives for sales staff.

4. *Recurrency:* Positive feedback for more borrowing through continued reduction in Federal Bank interest rates, reinforcing pressure to re-mortgage and take on more debt.

5. *Openness:* Connections between China and India's high rates of saving which finance the growing US deficit that rely on continuation of American consumer purchasing power.

6. *Equilibrium:* Gross asymmetry between the real economy and the highly 'leveraged' financial economy. For example, the ratio of equity to assets of investment bank Goldman Sachs was a staggering 1:2,325,580.[10]

7. *History:* Over-optimism about continuation of some twenty years of positive economic growth in developed economies and the emergence of the BRICs (Brazil, Russia, India and China) as new motors sustaining the process.

8. *Site of "knowing":* Fragmentation of knowledge across nation states about the real situation, in part due to a politics of 'light' regulation that generated insufficient information about what was going on.

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In the banking system case, each supposed certainty and sophisticated calculation of risk contained uncertainties that come to light in the cold reality of impending disintegration of the whole.

This brief review suggests that a complex framework has diagnostic and, hence, remedial potential for understanding and being better equipped to address the continually changing landscape of social problems. This is the calling and task of aided-development. And, we are now at a stage where a start can be made to viewing the international development cooperation through a complexity lens.

IV

COMPLEXITY AND AIDED DEVELOPMENT

'Vol vuur hamerde de minister op zijn laatste punt: effectiviteit. "Waar we succes hebben gaan we door, anders stoppen we." Meteen daarna gevolgd door de nuance: ´Maar we moeten dit wel zorgvuldig meten, met oog voor de complexiteit, externe factoren en de lange termijn. Anders doen we onszelf te kort, maar nog erger, dan doen we de mensen tekort die onze solidariteit verdienen.´"[11]

Bert Koenders, Minister of Dutch Development Cooperation

[Full of fire, the Minister hammered home his last point: effectiveness. 'Where we are successful will be continued, otherwise we stop.' Immediately followed by the nuance: 'But we need to measure this

with care, with our eye on complexity, external factors and the long term. To do otherwise would be an injustice to ourselves, but, even worse, an injustice to those who deserve our solidarity.]

Viewing the development industry through a complexity lens faces a number of problems. One is schizophrenia about politically demanded predictability on the one hand and the empirical truth about uncertainty in aided-development work on the other. This tension is reflected in the quotation. Another is the general reluctance to take on board a new way of thinking about development work until its acceptance can no longer be avoided. This address is, hopefully, one step in this direction.

I start with why, as a recognised way of analysing other social phenomena, complexity has made little headway in the aid fraternity. Analysis suggests ways of tackling the obstacles involved. These include being honest about contentions between the growing number of people concerned about the topic and the, potentially confusing, perspectives they bring. A modest, pragmatic way forward is proposed that introduces complexity as a model of thinking about social change and not a wholesale paradigm shift that logic would imply.

With this cautionary backdrop, reflection turns to the state of play in relation to debates about aid. This provides an entry to a necessary description of aid as a distinct system that can be analysed using complexity theory. This is illustrated in familiar terms of development sectors. Part V takes us to a substantive discussion on civic society and civic driven change with examples that exhibit civic agency in terms of citizen's influencing state functioning and power.

Introducing Complexity to Development Discourse
With others, Samir Rihani (2001; 2005) has been promoting the notion of a paradigm shift in development aid with com-

plexity as a more appropriate framework. He has encountered a number of problems in doing so. One is:

> "the natural and wholly justified, reluctance of scholars and practitioners to accept a move from one formulation that has prevailed for several decades to another. Shift on this scale takes place only after it has become abundantly clear that the current ideas have failed to answer too many fundamental questions or that they have unarguably failed to deliver consistently adequate results. Few would now claim that the prevailing beliefs and practices have worked satisfactorily." (Rihani, 2005:54)

A second, and more critical problem is that, even if there is enough dissatisfaction with performance, there is no reason, a priori, why complexity would be the best alternative. And, even if this was demonstrated, his analysis of geo-political considerations mitigate against changing a set up that has served donor countries well enough. For, the real measures of performance of the existing, model of aided development lie elsewhere. In addition, a lot of institutional and personal capital has been invested in current arrangements generating a resistance that would be hard to overcome.

In this scenario, what strategies are most appropriate to engage the development community in critical reflection on complexity as a better explanation for aid performance and its improvement? For Rihani, the answer lies in increasing the forces stemming from rising dissatisfaction from within the community itself. These forces both feed and benefit from a climate for transformation arising from pronouncements by public figures and intellectuals, such as Nobel prize winner Joseph Stiglitz. In other words, while external challenges to

aid performance which question its very assumptions about social change can help, strategy requires:

> "… an equally robust technical, hopefully scientific, justification for adopting a different model" (Rihani, 2005:60).

One agenda before us, therefore, is to increase the evidence base from which complexity theory, analysis and practical development action can be assessed.

A related agenda is to openly address differences of opinion about how complexity should be treated and communicated to doubtful audiences. The issue hinges, in part on whether or not complexity is best regarded as a system or as a pattern of social configurations. It also features in if and how the insights and knowledge gained through complexity analysis can be 'used'. The two issues interweave.

Chris Mowles refers to three camps or schools of thought among those engaged with linking complexity and development.[12] The 'utilitarian' camp pursues the debate from the angle of practical application. Insights from complexity theory - such as rules – are to be 'unleashed' on, for example, an organisation. This approach is simply inconsistent with the non-deterministic essence of complexity that cannot be instrumentalised in such a way. The second school relies on computation to model how social phenomena arise and can be explained, forgoing any pretension to prediction. The third school does not start from a 'holistic' systems perspective theory. Instead, this school relies on anthroposophic groundings from which patterns of human interaction derive from primary interactions between individuals. In this view "…the insights from theories of complexity offer similar explanations to those forged by a generation of philosophers and sociologists such as Norbert Elias, Pierre Bourdieu and the American

pragmatists …"[13] But complex adaptive systems are not an appropriate framing for explanations of what is observed, patterns are to be preferred. In this analysis he is argued to apparently ignore a fourth camp. That is people:

> "… who think that some ideas about complexity provide interesting analogies to imagine other ways of being and working, and that these don't equate to trying to 'control' a future but to try and role with the punches in ways that are more respectful of the ebb and flow of change."[14]

Contention in perspective between agent-centric and systems approaches to human interactions influence the understanding and interpretation of social phenomena, for example, the nature, evolution, function and reform of institutions (Woodhill, 2008).[15] The positions of each camp pivot on a dispute about the notion that society can be 'engineered' that is implicit in aided-development, in post-conflict reconstruction and in politics and public policy more widely. It would be unfortunate for rethinking aided-change if this dispute is either ignored or relied on as an excuse not to engage in serious debate.

Explained in more detail elsewhere (Fowler, 2007b), from the perspective of social analysis and problem-solving, the attribution of all social phenomenon to individual agency is excessively reductionist and self-limiting. It appears to rely on an interpretation of the formation of *habitus* that is immune from the inescapable and enduring force of entropy that is part and parcel of everyday human and social life (e.g., Hokikian, 2002). Entropy operates as a strange attractor that cannot be ignored. In other words, natural 'deterministic' drivers must be included as enduring human dispositions. Without this feature, primacy of agency does not, itself, offer a driver for the

expenditure of energy to establish and sustain self-organised configurations that are reflexive, dialectic and never stable.

Responding to the never-ending demand for configuration under complex conditions of uncertainty drives a social-adaptive imperative to gain maximum stability at minimum (energy) cost. Because all complexities cannot be grasped by one individual alone, institutions arise as a significant way of satisfying this imperative. Put another way, there is a selective-adaptive pressure to achieve and maintain social arrangements that call for compliant behaviour, but with minimum collective effort. One outcome of this necessity is an evolution of hierarchies of power distributions, rules and arrangements that are embedded in all human transactions, with trust as a critical variable. Bourdieu argues that gaining compliance with the existing order by influencing people's dispositions[16] within an individual's *habitus* is an 'invisible', cost-effective method of gaining compliance (Navarro, 2007). This ability is followed by control over language and knowledge; by determination of pubic agendas and participants; and by physical coercion (Lyotard, 1984; Lukes, 2005; Haugaard, 1997). It is these features of power relations between citizens and a state that civic agency must contend with.

In my view, a 'complexity as a system' model is to be preferred. Reasons for doing so are theoretical groundings which: (1) dialectically connect people to the natural world that they stem from and interdependently rely on; (2) provide for multi-disciplinary interpretations of social phenomenon; and (3) offer a coherent set of analytic and knowledge categories to help gauge what is appropriate reductionism and questioning for the issue at hand. Agency that imagines, strives and plans for a desired future is not marginalised or discounted, but uncertainty about attainment is central to description, explanation and interpretation.

In sum, communicating about complexity and development must, indeed, heed cautions about the inherent contradiction of instrumentalism. But one must not throw the child away with the bath water by ignoring its value in understanding the uncertainties that people have, must be aware of and struggle to overcome if they are to be agents of their own change. What this means in practice is explored by illustrative application of complexity to development.

Aid as a System

The quotation of the Minister above reflects disputes between recent publications on international aid (Sachs, 2005; Easterly, 2006; Collier, 2007). These texts signal disagreement about if and how poverty reduction can best be accomplished by aid. However, they exhibit no contention about the necessity for economic growth with a liberal prescription. An interesting comparison lies in the extent to which these authors assume and apply natural or social science paradigms to their analysis and confidence in making predictions. The Millennium Development Goals (MDGs) probably epitomise the Jeffery Sachs' – subject to adequate resources – plannable and manageable high predictability end of the spectrum. William Easterly's searchers and innovative processes are at the other extreme where indeterminism is to be found and worked with (in a market-based way). This span across analyses stemming from natural and social science theories suggests an opportunity for complexity to demonstrate its value in rethinking aided-development.

The development industry is a particular system with distinct features, located within a wider system of international relations and instruments of defence and diplomacy that are explored elsewhere (Stewart, 2004; Fowler, 2007a). Following Cilliers' observations (1998:5), complexity analysis requires a

system description to sets appropriate boundaries and locate the issues and questions. What does the aid system look like?

Official international development assistance operates on the basis of relations between supposedly sovereign nation states.[17] Its ostensible purpose is to accelerate and direct change in society in ways that reduce the incidence of poverty and exclusion, while improving governance towards greater democracy. The observed reality is that sites where these objectives are most relevant and critical are not strongly correlated with where aid is actually allocated between countries (Alisina and Dollar, 2002; Easterly and Pfutze, 2008; Wood, 2008). It is beyond the scope of this paper to delve into this inconsistency, but sufficient to recognise that there is a link into a wider system of geo-political and institutional interests that penetrates the aid system boundary.

As a system of resource transfer, relationships and processes, aid can be characterised in the following ways.[18]

- Is driven by a 'deficit of capital' premise generating an imperative to disburse funds and provide technical expertise.

- Follows and applies linear, prescriptive deterministic methods.

- Has a success rate estimated at around sixty percent for disbursements at completion, but with doubt about sustainability of change thereafter.

- Is trying to improve performance by increasingly applying competitive market principles.

- Is highly political but projects an apolitical (econometric) technocracy.

- Generates and operates with a sequence of power asymmetries along an allocation-disbursement chain from donor to intended recipient.

- Is populated by a diverse array of organisational actors with a corresponding plethora of self-interests, owners and measures of success which make collaboration difficult.

- Exhibits feedback mechanisms, such as evaluation, that seldom translate into accountability for (not improving) performance or applied in adjustment to country allocation decisions.[19]

- Learns and improves incrementally, but with susceptibility to 'fashion' changes in policy.

- Is connected through formal institutional arrangements that do not produce co-ordination between major national players that can simply opt out if they disagree.[20]

- Engenders resistance amongst those with lesser power that can emerge as pathologies.[21]

These features and history of performance, offer more than enough evidence to suggest that that world and national development has been misunderstood and mislabelled. It is not an inexorable, linear, deterministic process where chance, for example, plays an insignificant role. Yet the mislabelled model – which holds vicariously for donor countries – is held up as the process that others will inevitably follow, aided or not.[22]

From a more limited standpoint of 'complexity as theory of uncertainty of social process' at issue is the extent to which the aid system could be reformed and improved by recognising, understanding, systematically analysing and bringing uncertainty into its theory and practices. Not as an instru-

ment to improve prediction, but as a framework of observation, categories and thinking that enhance the human and institutional capabilities and resilience needed to be sensitive and respond to uncertainties as they unfold.

The next section discusses what might this look like in terms of major sectors of aid intervention.

Adopting a Complexity Approach to Aid Programmes

The analysis so far points to a different way of thinking and gaining awareness about aided-development. It presents a challenge to identify and better contend with the uncertainties of social change. What this means depends on many things, particularly the scale involved. To set the scene for applying complexity to the aid system, I start with an exercise which introduces an uncertainty lens to typical sectors considered critical for aided-change: health, education, agriculture and governance. Table 4., illustrates the degree of uncertainty faced in aid as the scale of the issue increases and is fed by uncertainties at lower levels. Sources of uncertainty change as scale increases.

For example, the efficiency of higher education depends on the way entry selection is carried out, a new variable on top of the uncertainties about the quality of pre-university teaching or of examinations. Similarly, health education to prevent malaria – use of treated bed nets, draining stagnant water and so on – do not cope with drug resistance when people do not follow treatment regimes, even when preventive measures succeed in reducing the overall incidence. Economic and cultural factors associated with drug access and use introduce types of uncertainty that make prevention of drug resistance more complex than a bio-medical problem.

Table 4. <u>Uncertainty in aid sectors</u>

Aided Sector	Degree of Process Uncertainty		
	Low (Simple)	Medium (Complicated)	High (Complex)
Health	Hygienic behaviour reduces incidence of illness	Effective education for public health	Prevention of risk behaviour in HIV/AIDS
Education	Text books can give information	Efficacy of teacher-learner interaction	Gaining effectiveness in higher education
Agriculture	Farmer sensitivity to risk	Establishing farm gate prices	Ensuring minimum calorie intake for all
Governance	Votes can be counted	Voter eligibility	Elections give legitimacy

Again, bearing in mind cautions about naïve utilitarianism, the general point is that analyses of uncertainties can reveal connections and features affecting change. For example, robust democracy depends on *substantive certainty* about the probity of the electoral mechanics, but calls for *substantive uncertainty* about the outcome in terms of who wins. If the result is foregone, why vote? In this paradoxical sense, uncertainty is a desired property of a sound political process.[23] In other words, uncertainty is not, necessarily, undesirable. Such insights can lead to different types of questions and more realism about what can be anticipated from directed effort at, for example, governance. Obviously, much work needs to be done to critically examine a complexity approach to rethinking aided-change at the practical funding level of projects and programmes.

It is now time to return to the starting square of this presentation, applying a complexity lens to civic agency. Specifically, I will look at agency that seeks to increase a polities' influence on, if not control over, political authority.

V

COMPLEXITY AND CIVIC AGENCY

The origin of this professorial appointment lies in a long career, much of which has revolved around NGO-ism, now recast in the mould of civil society. As some of you may be aware, a recent venture in this field was, together with Kees Biekart and others, to identify a narrative of development in society that is not premised on states or markets but stems from the agency of citizens. The results of this work on civic driven change (CDC) were made public in October as a start to wider debate in the months to come.[24]

The focus on CDC allows me to explain the concept but side-step discussions on what is or is not civil society and what is in and out of this category, a debate occupies many studies (e.g., Hodgkinson and Foley, 2003; Heinrich, 2007) and conferences. It also allows for concentration on self-organisation as a distinctive feature of and within societies.

This part of the address starts with a brief introduction to civic agency understood as civic driven change. Then a complexity perspective is applied to civic driven change within different contexts and with different intentions. The examples are chosen to illustrate that civic agency is not simply located in a civil society of non-profit associations as modelled by the aid system. Nor is it something necessarily orchestrated from above. The examples draw on self-organisation driven by civic agency of Chinese farmers and of activists in the recent US presidential campaign of Barack Obama.

Civic Driven Change

The notion of agency has been previously defined. What makes agency 'civic' are particular values attached to citizenship as a rights-based relationship with a state.[25] Civic behaviour is pro-social. It involves respect for differences between people and a concern for the whole "…that pushes society towards a world order in which people behave as permanent guests of each other and of the natural environment." (Fowler and Biekart, 2008:174)

As an attribute associated with citizenship, civic agency is not located within a particular institutional domain, such as government, market, civil society or family. Citizens in any walk of life can act in civic or uncivic ways affecting the whole through processes involving, for example, the spread of information and ripple effects of personal interaction. Local volunteerism for the public good is an expression of civility that can act as an example for others both near and afar. Gangsterism and street warfare to control territory to sell illegal drugs can propagate a general sense of fear beyond immediate borders.

When the right to have rights is respected, a long-term effect of civic agency is to orient a political order in ways that respect inclusion and tolerance of differences between social groups. Typically, this stabilizing condition becomes operational through contention, struggle, cooperation and negotiation to arrive at some form of democratic political dispensation. This arrangement selects, endorses and periodically modifies the political project, or collective future, of which people are part. However:

> "When progress – the realization of people's emerging social potentials – and deeper complexity is stymied by anachronistic social institutions preserving extant vested interests the disadvantaged have

to organise themselves to effect progressive social change." (Cole, 2003:336)

This quotation takes us back to the notion that civic agency contains the dialectic of compliance and resistance to the established order. Citizens can bow as well as raise their fists towards authority. The issue is under what conditions does the latter occur and what does this mean for support by external agencies whose agendas often call for the realization of the potentials of all people? A complexity-based answer would have to start with the citizen as actor, with civic agency as a possible act and with aid as an influence penetrating from the external environment. The next section adopts this approach.

Complexity and Civic Agency

I noted previously that a significant weakness of the aid system is an inability to embody change by those whose lives are central to the story of sustainable development. Despite an enduring people-centred rhetoric and call for local ownership, this enduring problem stems, amongst others, from the paradoxical 'tyranny of participation' (Cleaver, 1999). This, often ritualised, development practice is allied to the limited incentives for and reticence of institutions to cede power and control until public action leaves little alternative.

I would argue that complexity prompts different questions and interpretations with a potential to better understand and tackle this systemic weakness. There are three-fold reasons for this expectation. First, complexity is firmly actor/transaction dependent. It forces analysis to start with the life world of the agents concerned in a far more fundamental way than identifying deficits or needs or taking part in planning exercises and the implementation of aided projects. Second, the focus on uncertainty provides a distinct optic into existing tiers of

social arrangements, the power transmitted through connections and the reactions involved: compliance or resistance or, ...? Third, uncertainty is sensitive to the profile and appraisal of risk that an agent experiences, would anticipate and factor into their decision making about (in)action. Risk aversion must be well understood by 'outsiders' advocating and propagating aided-change for others (Rai, 2008).

To understand a situation, a complexity perspective of civic agency would ask the following sort of questions.

> What uncertainties are being coped with by whom and in what ways?
> What forms of self-organisation and connections with the wider environment make this possible?
> What uncertainties carry most risk?
> What role does uncertainty play in people conforming within the existing order?
> What action could be considered and negotiated to enhance individual and collective abilities to reduce and better cope with uncertainty?

Respecting answers to these questions and then working from them would imply a departure from common 'participatory' practice: a model which operates from and requires conformity with the 'certainty' parameters of the aid system sketched previously. It may be agent oriented, but it is not agent-based in the full meaning of the term.

Two brief cases can illustrate what complexity applied to civic agency can look like from two very different contexts and pursuit of political projects that involve greater citizen influence.

The first example is of mass complex civic agency in China. It is provided by Zhichang Zhu's study of the rise and power of

Household Farms (HF) and Township Village Enterprises (TVE). He argues that the transformation of China's rural economy brought about by these peasant initiatives cannot be adequately explained by prevailing institutional theories derived from and blinkered by analogy with Western experience.[26]

> "But who created HF and TVE, and how? …. HF and TVE were not built by Deng Xiaoping and his coalition at the centre. China's then ruling elites, the shining few, at best tolerated and acquiesced HF and TVE, only after it became painfully clear that the two ugly-duck institutions had uncontrollably grown up and that the Party-state could no longer do without accepting the vital benefits they produced. HF and TVE were not built by consciously organised 'collectives' either. There were no theorised models or slogans, no mass gatherings or boardroom meetings, no appointed, selected or self-claimed leaders/activists, let alone formal organisations to design and promote HF and TVE. Rather, documented evidence reveals that HF and TVE were created chiefly by millions of unknown farmers via a massive movement, a quiet revolution that is spontaneous, unorganised, leaderless, non-ideological and apolitical." (Zhu, 2008:1)

He shows how uncertainties, fears and risks about self-initiated collaborative action within the context of an authoritarian regime where minimalised and countered. Through trial and error, this was achieved through, amongst others: secret testing of farming arrangements disapproved of by the Party; wilful misconstruing of policies; misrepresentation of emerging, forbidden productive entities as approved types; corrupting party cadres; and, simply cheating on costs, prices and markets. His analysis goes on to demonstrate many characteristics

of HF and TVE as complex adaptive systems within a larger system – the state - that itself adapted. This case does not reflect a site or model of civic action expected by developmentalism. Yet, the spontaneous ability of citizens to exert significant influence on a non-democratic state should not be discounted because of this.

A very different illustration come from the United States of America where plural democracy has tested its limits in terms of the efficacy of political parties to ensure that the polity at large controls those in authority. Harry Boyte (2008), shows how increasing uncertainty about the probity of the political system provoked citizen driven self-organization at the cost of party-political mobilization and control by incumbent elites. This phenomenon is recently seen in Barack Obama's election strategy. A mass of volunteers outside of the traditional Democratic Party machine, used electronic connectivity for fund raising, information exchange and agenda engagement. Again, many elements of complexity and uncertainty were in play. Interactions were large scale via the web. Thousands of trained volunteers acted at a short range with potential voters. Low-cost multi-directional information flows gave real-time communication about events and positions. Feedback was seen in rapid and adaptive reaction to the rival's campaign and its (negative/demonic) advertising. A large financial asymmetry emerged between candidates because of a strategy of mass fundraising with small amounts. Sensitivity remained with the wider environment, such as policy engagement in the banking collapse. Finally, was the significance of historic symbolism in the candidacy of an African-American. Despite all these uncertainty reducing choices, the result was uncertain to the last. Lasting effects of an Obama constituency outside of the Democratic Party hierarchy remain to be seen.

What these and a growing number of cases (e.g., Mathie and Cunningham, 2008) help communicate is that complexity is sensitive to agent-based processes within socio-political configurations that constrain or try to control civic influence. A related message is that civic agency can be instigated from many institutional locations if agents wish to do so. Consequently, it will be important for the aid system to reflect on how multi-locational civic agency can complement, if not replace, a current preoccupation with civil society.

V

CONCLUSIONS AND PROSPECTS

For me, the case for viewing and doing development through a complexity lens rests on five arguments or propositions. First, there is ample evidence that linear-based aid is not effective enough. While incremental change may improve things, they will not fix the deeper factors involved. Complexity offers a well-grounded alternative perspective of social change, showing greater correspondence with the observed reality of uncertainty in development work.

A second argument stems from the centrality of self-organisation in complexity thinking and analysis of change at different scales. Complexity offers a potential for a deeper understanding of people's collective agency than the externally modelled 'capacity building' impositions currently on offer, which tend to create cloned, aid-dependent (civic) entities.

Third, linking complexity with civic agency illuminates a logic of connected processes that can usefully modify the primacy of institutional sectors as a dated model of how responsibilities and accountabilities for social change are allocated. Innovations in organisational forms, in public policy and in the (political) power of electronic communications through cell phones and the web are creating more and more fuzzy borders. Complexity helps describe and explain these as destabilizing evolutionary processes with uncertain outcomes that can be explained but cannot be 'managed'.

A forth reason is that being more honest about the uncertainties aid faces may actually increase public confidence in what development cooperation is trying to do. When set against pre-defined targets which are not achieved, the promise of seemingly certain performance sustains public doubt and cynicism about aid's merits. Peddling unreal expectations creates the stick with which we being beaten as well as feeding opportunities for playing political football with aid budgets. A media article with a banner headline "Hulp Die Niet Helpt" [Help that doesn't help] (HP/De Tijd, 8 August 2008) reflects the consequences of creating false expectations.

A final reason is that we are not alone or on a professional island. Other fields of social science are exploring the meaning and potential value of applying a complex view to better understand and explain social problems. Why not also in development studies? Is this field so special? Or is it already patently clear within the aid community that complexity will be such a 'disruptive theory' that is best avoided because of what it could expose or require in terms of institutional reform?

In sum, though the logic is clear, I am not arguing for a paradigm shift to overturn some sixty years of aid practice. But, I

am arguing that there is a <u>prima facie</u> case from both theory and evidence to undertake an exploration of what complexity has to offer the development community. The sort of agenda involved could include the following items.

- Investing in a series of (international) discussions or forums which start to systematically probe complexity and development to identify the most promising areas for dedicated work. Possible candidates are:
  - The tricky relationship between uncertainty and risk in external support for uncivil action and disobedience to achieve civil ends, such as forming a robust democracy and improving respect for difference and rights.
  - Investigating the role uncertainty plays in intransigent corruption.
  - Applying coping with uncertainty in performance standards as well as in programme monitoring and evaluation with coupling to greater accountability (Guijt, 2008; Rogers, 2008).

- Fast track communications which make 'uncertainty' a positive, honest political message that rebuilds public trust in what aid is trying to do.

- Thinking through practical steps of introducing 'uncertainty' into existing ways that aid institutions work and testing the practical value of doing so.

Following complexity principles, establishing and resourcing a network of 'homes' for this type of agenda would be a major step forward on a long journey. I hope that you will be interested in joining me.

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Rector, colleagues, ladies and gentlemen. I am not sure that in the field of development studies the ISS intended to have a 'Professor of Uncertainty'. But it appears that you now have one.

My thanks for your attention.

Notes:

(Endnotes)

1   I am grateful to Irene Guijt and Kees Biekart for comments on a draft of this presentation.

2   The distinction between reformist reforms and non-reformist reforms is drawn from Gorz, 1964.

3   My thanks to Irene Guijt for this observation.

4   Entropy – the permanent movement towards disorder - must be continually countered. See Rifkin, 1980; Cilliers, 1998:122.

5   The 'butterfly effect' is both a physical act in weather systems and the visual representation of the Lorenz attractor.

6   For examples, see http://www.wikipaedia.org/wiki/post-modernity.

7   Paul Seabright (2004) argues that trust provides a better explanation for how the world has developed economically than competition.

8   Drawn from an example in Mowles, 2008:813.

9   Berlin, I, 1997:76.

10   The Economist, 18 October, 2008, p. 14.

11   http://www.oneworld.nl/Nieuws/Achtergrond/article/15192/Koenders_trekt_alles_uit_de_kast_voor_behoud_OS

12   http://www.thebrokeronline.eu/en/articles/Connecting-the-dots/Article-on-complexity

13   Review comment by Chris Mowles, 2008, <http://www.thebrokeronline.eu/en/articles/shaping-behaviour/(issue)/9>

14   Irene Guijt, personal communication, 23rd November 2008.

15   The Broker, Issue 10, October 2008. http://www.the-brokeronline.eu/en/articles/shaping-behaviour/(issue)/10. See also the review comments by Mowles. As with other features of configuration, institutions constitute significant socially created referents that are themselves subject to continual negotiation.

16   Predispositions can be understand as drivers of agency - reproduction, identity and meaning – and psychological characteristics of, for example, the asymmetry between fear of loss and prospect of gain, security and freedom from want and fear.

17   For critics of the premise of sovereignty see: Krasner, 1999; and Collier and Hoeffler2007.

18   Drawn from: Riddell, 2007 and personal observations.

19   See, Carlsson, Kohlin and Ekbom, 1994. The situation they sketch as not changed substantially.

20   Peer review mechanisms highlight but do not show significant potential in this regard. See report by Fabricio Pagani: http://www.iss.co.za/pubs/ASR/11No4/Feature2.html

21   A common example is paying civil servants to be present at meeting to give a semblance of ownership and legitimacy. For civil servants in the South it is delaying the

signing of agreements so that disbursement pressures push donors to accommodate demands.

22   A similar case for mislabeling is made by Eric Beinhocker (2007) in relation to the economic system.

23   South Africa has a well functioning Independent Electoral Commission (IEC) and sound constitutional order. Integrity of the electoral machinery is pretty certain. Yet the political system is not robust because – for unique historical reasons – the ANC has been assured victory as a certain outcome.

24   See <www.iss.nl/cdc>

25   Where this condition does not exist – for example under autocratic regimes seen in North Korea and Myanmar – civic agency is probably moot.

26   I am grateful to Chris Mowles for sending me this paper.

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