PARTICIPATORY METHODS, BEHAVIOUR-INFLUENCE AND DEVELOPMENT - A DISCUSSION PAPER

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Synopsis

In the past few decades two complementary revolutions have been taking place. One is the participatory revolution. It has various aspects, but one of its major themes concerns behaviour change of various kinds, at several levels. Participatory methods enable poor and marginalized people to contribute actively to gathering and analysing information, where previously it was taken from them and analysed elsewhere. They enable poor people to participate in making and implementing decisions that affect them, where previously these decisions were taken elsewhere. They also bring about changes in the behaviours and mindsets of development practitioners. Participatory methods have a further benefit: they provide poor people with a means of influencing both practitioners and policymakers.

The second revolution has transformed the scientific understanding of human nature. It is based on research in the behavioural and related sciences over the past five or so decades which has led to advances in the understanding of the fundamental principles of behaviour. This revolution, like the participatory revolution, is multifaceted: it has generated insights into the factors influencing the behaviours not just of individuals but also of organizations, communities, populations and governments. It too has a similar central theme: these insights have generated a large and expanding variety of methods for influencing behaviour at several levels, through various practical approaches. Commercial marketing is by far the largest of these, but there are several others: behavioural economics, health psychology, environmental psychology, organizational learning, social marketing, and social network science, for example.

Various participatory methods reflect certain fundamental principles of behaviour.

Parts 1 and 2 of the paper describe how various participatory methods reflect certain fundamental principles of behaviour. They explain the relevance of a few of these principles, firstly to participatory methods in general, and secondly to the proportional piling method used in the study of the 1992 drought. Parts 1 and 2 conclude by suggesting that the effectiveness, versatility and popularity of participatory methods are due in large part to the fact that aspects of them reflect various fundamental principles of behaviour. This helps them make the invisible visible. It also links participatory methods with other methods which have been derived from some of these principles. These links are explored in Part 3.

Part 3 illustrates one commonality between the two revolutions: both have developed a wide range of methods, based on fundamental underlying principles of behaviour, for influencing behaviour – collectively termed 'behaviour-influence methods.' Three examples show how these methods are being used to address some of the most pressing problems facing societies around the world. The first concerns 'open defaecation' – over 1 billion people in developing countries use their surroundings as latrines. Community-Led Total Sanitation (CLTS) is a relatively new approach which has begun to address this problem on a significant scale by using participatory methods. Due very largely to the particular principles of behaviour which CLTS involves, behaviour change often rapidly follows the use of these methods; people dig holes and build latrines. Two examples from the US illustrate how other behaviour-influence methods have been used to reduce greenhouse gas emissions and increase savings.

Development involves increases in various influences on behaviour

Development involves multiple kinds of behaviour change at several levels (Part 4). These changes come about through two generic kinds of influence on behaviour: those that occur by default, and those that are designed. The latter in turn fall into two broad categories, commercial and non-commercial. Development involves an increase in the variety and number of these influences, particularly commercial behaviour-influence methods, which have increased greatly in sophistication and aggregate power. An average consumer in the North receives several hundred times as many commercial marketing messages each day as does an average villager in the South; Americans may receive several thousand every 24 hours.

Applications of behaviour-influence methods

Part 4.2 summarises various applications of non-commercial behaviour-influence methods. They are being used to address a broad spectrum of issues in both North and South. They can be applied at different levels of society and in different socio-economic contexts. They are in widespread use in the state and third sectors, as well as in the private sector. Many can be scaled up through organizations, traditional social networks and ICT and the social media. These 'transmission mechanisms' provide the potential for local, small-scale applications of relatively precise behaviour-influence methods to be linked among large numbers of people and organizations, and across different contexts and countries.

Some of these methods and their impacts can be relatively sustainable, in large part because the methods reflect fundamental principles of behaviour. This is especially true of the principles involved in social interactions – a defining feature of participatory methods. As the three examples in the previous section illustrate, behaviour-influence methods, if used appropriately, can be effective, cost-effective and time-effective. In all three cases they were also low-tech or no- tech and culturally appropriate.

Some of these methods help realize 'social potential'

Some of these methods help realize 'social potential' - the potential of people and organisations to achieve things, when they are linked in various ways, that they could not achieve (or that they could only inadequately achieve) when acting individually. This is a central feature of participatory methods, exemplified by CLTS, and also by Positive Deviance (described in a separate paper on this website)

The changing nature of global problems, and the frequent failures of the 3 main approaches to them

Part 5 addresses a question that this discussion might prompt: so what?[a] The answer to this question concerns the changing nature of global problems. An increasing proportion of the challenges confronting societies around the world have substantial behavioural components. Such crises might be termed behavioural crises. Three groups of these challenges are, firstly, climate change and other environmental problems; secondly, 'lifestyle diseases' such as lung cancer and diseases associated with obesity; and, thirdly, financial and economic crises. However, the main approaches to a number of these challenges have often failed. The most egregious of these failures is the frequent failure of large-scale collective action. The MDG sanitation target, agreed by all UN member states at the Millennium Summit of the UN in 2000, will almost certainly not be met by 2015. The Kyoto Protocol, drawn up in 1997, has not curbed GHG emissions; the US still has not ratified it, and probably never will.

There are various reasons for the failure of collective action in these two cases. One is that they have not adequately addressed a primary underlying cause of these problems: particular behaviours of individuals and organisations. In contrast, behaviour-influence methods do just this. They address global issues through small-scale interventions directed at their root causes: they target specific behaviours. Some of these interventions can be connected by organizations through their networks, and through the use of ICT and the social media, as the rapid international expansion of CLTS over the past 8 years illustrates.

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[a] *This was the question posed in the introduction to a report for the UK government, which began by observing that 'there have been major advances in understanding the influences on our behaviours.' (Cabinet Office, 2010) These advances reveal 'interesting effects, but, fundamentally, "so what?"' The report aimed to answer this question for UK policymakers by demonstrating the relevance of these advances to three major areas of policy. Similarly, this discussion paper aims to begin to show how these advances are relevant to the work of those organisations in the public, private and third sectors in both the North and the South that are attempting to address three major clusters of 'behavioural crises,' outlined in Part 5.*

The participatory revolution and the revolution in the behavioural and related sciences have generated a large and increasing number of behaviour-influence methods. Both have much in common. Both involve behaviour change. Both have made the invisible more visible: they have revealed biases and misplaced assumptions that have influenced policymakers and the policies and programmes they have implemented. They have shown how people and organizations can modify their behaviour in ways that benefit them, wider society and the environment.

However, these two revolutions have been developing largely independently of each other over the past few decades. They have produced methods under many different headings, which, despite their commonalities, have been linked to only limited extents.

A greater interplay between the two revolutions is needed - *ThinkFluence*

The 30th and 40th anniversaries of the seminal publications which made significant contributions to the two revolutions will take place in 2013 and 2014. A fitting way of marking these anniversaries would be to promote a greater interplay between both revolutions, firstly to cross-fertilize different varieties of learning and practice. Secondly, synergies are likely to emerge that should contribute greatly to developing solutions to problems that currently seem intractable (see Appendix 3.5).

Such synergies are important because an increasing proportion of the challenges confronting societies around the world have substantial behavioural components, and several are linked. Furthermore, they involve significant percentages of populations, and sometimes entire communities. It is therefore important to involve the individuals and communities which these problems affect in addressing them. The synergies which should flow from the confluence of these two revolutions will increase the likelihood that sustainable solutions to apparently intractable problems will emerge.

A greater interplay between the two revolutions would generate an approach to behavioural crises that matched their defining feature – the behaviours of individuals and organisations. By complementing large-scale national and international initiatives with connected small-scale actions, a convergence between the two revolutions would put into practice a version of the adage 'Think global, act local' that is relevant to the connected world of the new millennium: 'Think global, act local, link global'.

Incorporating the central theme of this paper, this can rephrased as 'Thinking about, leveraging and linking influences on behaviour: '*ThinkFluence'.*

Appendices

The appendices briefly discuss a number of issues. These issues are linked; they can be grouped under two headings:

Aspects and features of behaviour influence methods

Positivity, resilience and well-being

Ubuntu and the fundamental importance of social connections, both close and distant

Some features of behaviour-influence methods (which, in isolation, may seem insignificant, but when used in combination, and with transmission mechanisms, can be powerful)

Behaviour influence and culture

Part of the rationale for using behaviour influence methods

Three forms of unsustainable behaviours, which correspond to the three forms of behavioural crises discussed in section 5

The importance of marketing, both in promoting unsustainable behaviours, and as a largely untapped resource for promoting sustainable behaviours.

The need to analyse policies, programmes and projects in terms of the current and potential influences on the behaviours of individuals, groups and organisations

Framing sustainable development in terms of promoting sustainable behaviours and discouraging unsustainable behaviours

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PARTICIPATORY METHODS, BEHAVIOUR-INFLUENCE AND DEVELOPMENT - A DISCUSSION PAPER

Introduction

When I came to review the proportional piling method which we used in the study of the 1992 Southern Africa drought, and participatory methods in general, it became apparent that aspects of these methods reflected certain fundamental principles of human behaviour. Most of these principles have been elucidated since 1945, particularly over the past 40 or so years, by various researchers in the behavioural and related sciences.[1] Aaron Beck, founder of cognitive therapy, Nicholas Christakis, co-author of *Connected*, Robert Cialdini, author of *Influence,* Daniel Kahneman and Elinor Ostrom, separately awarded the Nobel Prize in Economics for very different but ultimately connected areas of work[2], Martin Seligman, one of the founders of 'positive psychology', Peter Senge, author of *The Fifth Discipline*, and Richard Thaler, co-author of *Nudge*,[3] are perhaps the best known of these researchers, but there are many others.

Advances made in the understanding of these principles, and those which underlie the workings of the contexts in which behaviour occurs, have contributed to a revolution in the behavioural and related sciences.[4] This revolution is multifaceted: it has generated insights into the factors influencing the behaviour not just of individuals, but also of organizations, governments, communities, and populations. Many of these insights have been used by practitioners in various disciplines to generate a large and expanding variety of methods for influencing behaviour at several levels. Commercial marketing is the largest of these, but there are several others: behavioural economics, health psychology, environmental psychology, social marketing, and organizational learning, for example.

This revolution has paralleled the participatory revolution (Cornwall and Scoones, 2011), which has taken place over the past few decades. It too is multifaceted; similarly, one of its major themes concerns behavioural influence of various kinds, at several levels. Participatory methods enable poor and marginalized people to contribute actively to gathering and analysing information, where previously it was taken from them and analysed elsewhere. They enable poor people to participate in making and implementing decisions that affect them, where previously these decisions were taken elsewhere. They also bring about changes in the behaviours and mindsets of development practitioners. Participatory methods have a further benefit: they provide poor people with a means of influencing both practitioners and policymakers.

Part 1 describes the relevance of certain principles of behaviour to participatory methods in general; and Part 2 describes their relevance to the proportional piling method used in the study of the 1992 drought

Part 3 outlines some common features shared by the two revolutions

Part 4 describes how the fundamental nature of the principles of behaviour has several important implications for methods derived from them.

Part 5 suggests that these two revolutions, which have been developing largely independently of each other over the past few decades, have much in common. Correspondingly, much can be gained from a greater interplay between them, not just to cross-fertilize different varieties of learning and practice, but also because the whole that should emerge from the sum of their parts will be well-suited to the changing nature of the challenges confronting societies around the world.

Part 6 Conclusion: by complementing large-scale national and international initiatives with connected small-scale actions, a convergence between the two revolutions would put into practice a version of the adage 'Think global, act local' that is relevant to the connected world of the new millennium: 'Think global, act local, link global'. This might be condensed to 'ThinkFluence' – thinking about and linking influences on behaviour.

1 The behavioural basis of participatory methods in general

The term 'principles of behaviour' refers to fundamental aspects of human psychology that influence behaviour.[5]

1.1 Some principles of social behaviour

Participatory methods require social interactions, which are influenced by some of the most powerful principles of behaviour. These include affiliation, similarity, imitation, social learning, social norms, reciprocity, and social identity. The power of social influences on behaviour is captured by the term ‘peer pressure’ which refers to the combined effect of several of these principles.

1.1.1 Affiliation

We spend most of our waking hours with other people, even if we are not actively interacting with them all the time. The desire to be with other people is termed affiliation (Hogg and Vaughan, 2010). It is fundamental to human nature: being with others is essential for the maintenance of physical and mental health, and for general well-being; and prevents the psychological and physical problems that emerge after extended periods of isolation. The performance of various kinds of tasks is enhanced by the presence of others. In some cases performance is improved simply by the knowledge that they are being carried out with others, even if these others are not nearby. This helps explain why people make unpaid contributions to Wikipedia and open-source software. A basic feature of participatory methods is that they involve people interacting with each other.

1.1.2 Similarity

We tend to like people who are similar to us (Cialdini, 2008). This holds true whether the similarity concerns interests, lifestyle, opinions, background, or personality traits. Similarity is attractive. Consequently the affiliation and similarity principles interact: people generally spend more time with people who are similar to themselves than with people who are markedly different. They also tend to believe and trust those who are similar to themselves more than those who are different. Similarity helps shape our views and our lives, by operating within the groups to which we belong and through the social networks which weave around us.

The similarity principle has several important consequences, some of which play out through interactions with other principles. Its ramifications include peer pressure, corporate culture, stereotyping and prejudice, and the emergence of ethnic neighbourhoods and also gangs. Marketers exploit it extensively (Cialdini, 2008). For example, if you buy a book online through Amazon, you will see a message stating that ‘people who bought this also bought X, Y and Z.’

Participatory methods use this principle whenever they involve groups of similar people. Similarity facilitates participation: participants tend to ‘spark off’ each other. In contrast, in mixed groups, differences can dampen or bias the process: men tend to talk more than women, people with more formal education tend to say more than those with less; and people in positions of power tend to dominate discussions.

1.1.3 Imitation and social learning

Imitation is a basic learning mechanism, particularly in children; it is faster than learning by trial and error. It is a deeply rooted mode of human behaviour. It has a neurological basis; when we see someone eat or run, for example, specialised *mirror neurons* fire in the same part of the brain that would be activated if we ourselves were eating or running. It is as if our brains practise something that we have merely been watching; this makes it easier for us to exhibit the same behaviour in future (Christakis and Fowler, 2011).

Imitation does not only occur on a small scale; it can ripple through large populations. People eat more than they usually do when randomly assigned to be seated at a meal table near strangers who eat a lot. The effect can be so subconscious that it has been called ‘mindless eating’ (Thaler and Sunstein, 2009; Wansink, 2006). But the effect doesn’t stop when the diners leave the table. It spreads through people’s social networks; imitation is one of the basic processes by which behaviours and emotions - and beliefs and attitudes - can be transmitted on large scales, sometimes quite rapidly.[6]

The social context of participatory approaches provides an ‘enabling environment’ which facilitates imitation – participants see what others are doing, and if it seems to work, or if it seems enjoyable, they are likely to repeat others’ actions. Hamilton (2010) describes how this kind of *social learning* approach has been used in the UK to encourage people to ‘eco-renovate’ their houses. Community-Led Total Sanitation (CLTS), discussed in 3.3 below, illustrates how this approach can be applied to a different problem in the South – it is applicable in many different contexts because the same fundamental principles of behaviour are involved.

Amartya Sen (2001), in *Development as Freedom,* draws attention to the importance of imitation in 'social, economic and political life.' He emphasizes its role in the operation of social norms (below 1.1.4).

1.1.4 Social norms

Social norms refer to the behaviour of others. Individuals tend to do what most other people do, especially in groups and in communities. Social norms include the tendency of people to do what they believe, or are told, is 'norm-al' – beliefs and information play important roles in their influence on behaviour.

> *'How people behave often depends on how they see – and perceive – others as behaving,' Sen (2001) points out. 'Much depends, therefore, on the reading of prevailing behavioural norms.'*

They are involved in participatory approaches (see the discussion on Community-Led total Sanitation in 3.3 below) and in the work of many NGOs:

> *'(The) skilful use of social norms can be a major ally of non-profit enterprises that call for committed behaviour.'* [7]

Social norms play a central role in the behaviour of organizations generally – they comprise one of the main sets of influences on corporate culture**.** [8]

1.2 Autonomy, reactance and participatory methods

1.2.1 Autonomy and reactance

An expanding body of behavioural science research suggests that the desire to be autonomous, 'to behave with sense of volition and choice,'[9] is a basic human motivation. It can have a powerfully positive effect on performance in various domains[10] – particularly at work, and during leisure: part of the benefit of leisure activities, hobbies, and sports, arises from the fact that people choose to do them. Some businesses now promote 20% time, where employees are encouraged to spend a fifth of their working hours on any project they want; various innovations, such as Gmail, have been developed as a result (Pink, 2011).

Autonomy is an element in *'flourishing'*, discussed in Appendix 1.

The desire to be autonomous appears to be universal. Researchers have found links between autonomy, performance and well-being not just in North America and Western Europe, but also in Russia, Turkey, South Korea, and Bangladesh.[11]

This desire drove the anti-colonial movements in the 1950s and 1960s and the uprisings against communism in Europe in 1989; it has driven some of the anti-authoritarian movements in the middle-east, and the anti-austerity movements in Greece and Spain.[12] It is closely linked with its mirror-image principle, reactance.

Reactance occurs when an individual or group is told what to do and *reacts* against it (Brehm, 1966). It is the psychological term for the process underlying a negative response to a request or instruction that is inappropriately made, or which is perceived to unacceptably infringe the autonomy of the person being told what to do. It is a common experience of parents with teenaged children.

1.2.2 Autonomy and participatory methods

Participatory methods both encourage autonomy and avoid reactance. They strive not to prescribe. They help people do their own analysis, come to their own conclusions, and take their own action (Chambers, 2009). Actions are likely to be more effective, cost-effective and sustainable if they emerge from the bottom up than if they are directed from the top down.

1.3 Flow, intrinsic motivation, and fun

People using participatory methods often become absorbed by them. This state of absorption in a task has been extensively studied by Mihalyi Csikszentmihalyi (2002). He calls it ***flow***. It can occur when people enjoy doing something for its own sake, when the goals are clear and when feedback is immediate – features which characterize most participatory methods. Flow is an element of well-being, discussed in Appendix 1.

Villagers aren't paid for engaging in participatory methods; they receive no 'extrinsic reward,' which is a reward that is external to the task. The reward is intrinsic to the task: simply doing it is rewarding. ***Intrinsic motivation*** has been studied for the past 4 decades by the psychologist Edward Deci (1997), who has found that if tasks are structured appropriately people will undertake them for their own sake, rather than for external rewards (see also Gneezy and Rustichini, 2000; Lepper et al, 1973; Pink, 2011)

Participatory methods produce a particular form of intrinsic benefit for those taking part in information gathering and analysis. This consists of the insights which these methods generate into their lives and into their relationships with each other, with their environment and with the society and the economy in which they live. Among these insights may be the realisation that people who are materially poor or who are otherwise disadvantaged can exercise greater influence over projects, policies, and processes that affect their lives than is often assumed.[13] A term commonly used to describe this realisation is empowerment.[14]

A third aspect of participatory methods, related to the other two, is that villagers generally enjoy doing them; they are ***fun.*** Fun is a common feature of many participatory methods.[15] Much of its motivational power comes from its social aspects: from the fact that it is experienced during social interactions.

1.4 Visual dependency and making the invisible visible – in sight, insight, in mind

Most participatory methods have a psychological basis in another respect: they make the invisible visible***.*** We are a 'visual dependent' species: sight uses a larger part of the human brain cortex than do the other 4 senses, leading people to rely more heavily on visual information than on any other kind (Koger and Winter, 2010). This is one reason why climate change is a difficult issue: not only are greenhouse gases invisible, but most of the impacts of climate change are not ordinarily visible in Wall Street and in other centres of economic and political power. Moreover, the people whom climate change disproportionately affects are largely invisible, too. 'Out of sight, out of mind,' like many sayings, is rooted in reality, and reflects a fundamental aspect of human cognition and behaviour.

Information which is out of sight tends to be out of mind; conversely, information which is in sight is more likely to be kept in mind and remembered. Information which is in sight is also more likely to generate insights, particularly from – and for – those who help provide it. And these subsequent insights are in turn more likely to be kept in mind by those who helped produce them.

The processes of gathering and compiling and collating information in participatory methods are not just visual; they are highly visible, as is the subsequent analysis. Moreover, these processes are visible not just to one respondent, but to all the people who participate in them. They can not only point out errors, inaccuracies and omissions on the spot, they also can improve understanding and the quality of the information presented in other ways, thereby additionally improving the quality of the conclusions drawn from it. This facilitates feedback, described in 1.6 below.

1.5 Cognitive Myopia, Proximal cognition, '4D' problems and NIMBY responses

Visual methods have further advantages – they help overcome the problem of 'cognitive myopia' or 'proximal cognition' (Koger + Winter, 2010, Weber, 2012). This refers to the fact that our senses have limited ranges. We are hard-wired to notice and respond to problems and opportunities that are relatively near in space and time; of particular importance, the consequences of our actions that occur relatively quickly have a much great influence on behaviour than those that are delayed – their influences are 'discounted' (see section 1.6).

Climate change and various global environmental problems (such as tropical deforestation, declining biodiversity and diminishing fish stocks) are '4D' problems: their adverse impacts are mostly Delayed, Distant and Diffuse, and they affect people who seem Different from urban consumers, living in very different situations from theirs.

'The poor are different from you and me'
'Yes, they have less money' [16]

These attributes mean that the responses to these problems are much weaker and more delayed than they would be if they were characterized by the opposite features. Often the response is inaction; the *principle of least effort*[17] influences much of our behaviour, and underlies the popularity of labour-saving appliances, automated machinery (e.g. domestic heating in high-income countries) and remote controls. In contrast, the response of people who hear about plans for a major infrastructure project near them is often strong and immediate: 'Not In My Back Yard' (NIMBY).

Visual methods don't address all of the 4D attributes, but some can address two or three of them, distance, diffuseness and delay. Maps, for example, bring distant items to within a few metres of participants, and they bring together diffuse items. Calendar tables bring delayed events close to earlier events. The ways in which participatory methods address the 4D problem are illustrated by Community-Led Total Sanitation (see section 3.3 below).

1.6 Feedback, lack of delay, time-discounting and systems

Visibility confers another advantage – feedback by participants who see the visible diagrams, maps and drawings involved in most PLA methods is more or more or less instant. This again has a behavioural aspect – rapid feedback influences behaviour much more effectively than delayed feedback (which is one reason why climate change is a difficult issue). Feedback, if it occurs at all, is generally delayed in almost all non-participatory methods of information gathering.[18] Delay reduces (or discounts*) the influences of feedback, rewards and punishments, and gains and losses, on behaviour (Weber, 2012).

> **The principle of time-discounting means that pleasant or unpleasant experiences which occur after a substantial delay are discounted – their influence on the behaviour they are associated with is much smaller than the influence of those which occur almost immediately.* [19]

The advantages of visibility and rapid feedback are illustrated by the 'shit maps' used in 'Community-Led Total Sanitation' (CLTS) – see section 3.3; in addition, their power to influence behaviour is amplified by the emotions these maps elicit: disgust, fear and shame.

Feedback is a central component of learning and of behavioural influence in general. It seems to be effective because it has both informational and motivational properties: it tells participants about their movement towards a goal. One of the main factors underlying climate change is a lack of appropriate feedback – people in high income countries do not see the impacts on climate that their excessive energy use causes. This contributes to high domestic energy consumption (Darby, 2010) – bills usually arrive only once a month; people don't see how much energy they use when they leave computers, TVs, and microwaves on standby, or when they leave their battery chargers plugged in after their batteries have been charged. [20]

Feedback, or, more accurately, the relationship between positive and negative feedback, is a fundamental process in systems of all types. It governs temperatures in buildings with thermostats. Feedback imbalances in several systems underlie climate change and various environmental problems. For example, shrinking polar ice reduces the 'ice albedo effect' – rising air temperatures tend to decrease ice cover and hence the amount of solar energy it reflects, leading to an increase in the amount of solar energy absorbed, which leads in turn to more warming. Positive (amplifying) feedback exceeds negative (dampening) feedback; (see Section 5.3.1, p27, for the feedback imbalances involved in obesity and the 2007-8 financial crisis).

Feedback is similarly fundamental to human systems (and to the relationships between these systems and environmental systems). It is central to *systems thin*king, the '5th Discipline' in Peter Senge's (2006), learning organisation approach, which has been widely adopted by businesses over the last few decades and is now being applied to a range of environmental issues. Rather than focusing on the individuals within an organization, systems thinking focuses on interactions within organizations, and between organizations and the contexts in which they operate. It involves a shift of mind:

- seeing interrelationships rather than linear cause-effect chains, and
- seeing processes of change rather than snapshots (Senge, 2006).

This shift in thinking is essential if some of the greatest crises now confronting societies around the world are to be adequately addressed. A lack of systems thinking and inadequate or absent feedback are two of the most important factors underlying these crises, which are further discussed in section 5 below.

2 The behavioural basis of the proportional piling method used in the Southern Africa drought study

2.1 Framing the study in terms of activities

How questions are *framed* (or worded and presented) can significantly influence the responses to them, even with highly trained professionals. [21]

> *In* Thinking Fast and Slow *(2012), Daniel Kahneman describes how (in a study his collaborator Amos Tversky carried out with colleagues at Harvard Medical School) most doctors recommended one treatment rather than another, simply because of the particular way it was framed - even though both had identical outcomes. The first framing was that 'the one-month survival rate (following surgery) is 90%'. The second framing was that 'there is 10% mortality in the first month (following surgery)'. Significantly more doctors recommended surgery when it was framed in terms of survival than when framed in terms of mortality.*[22]

We framed the study of the 1992 drought not just in terms of its effects, but also in terms of the responses to it, because investigating how villagers responded to it was the principal aim of the study. We framed questions in terms of activities, not just outcomes. We were interested not only in changes in food sources, for instance, but in the activities involved in these changes: we discussed changes in the ways in which villagers obtained food.

This framing facilitated the discussion of the score-tables: it helped focus the discussion on the causes and consequences of villagers' activities, and how the consequences rippled through the fabric of their livelihoods, through the trade-offs their activities involved.

2.2 Improving and checking recall: consistency, anchoring and adjustment, availability

2.2.1 Consistency and cross-checks

Before the study we were uncertain about the accuracy of villagers' recall, three years after the drought. During the pilot phase we discovered two ways of improving their recall, and of checking that it was reasonably accurate.

One way of resolving this doubt was by applying the consistency principle.

> *The consistency principle is one of the most powerful influences on behaviour* (Cialdini, 2008). *It works both at an individual level (people generally prefer to have consistency between their past and present actions and between their beliefs and their behaviours*[23]*) and at a social level: people prefer to be seen to be consistent, and they prefer consistent behaviour in others. Inconsistencies provoke comments and labels (unreliable or untruthful, for example).*

We applied the consistency principle, through the use of cross-checks. We developed these during the pilot phase, when we found that recall was in general reasonably accurate, particularly when villagers recalled their activities in the context of other livelihoods. Two different score-tables often acted as cross-checks, as a change in the score for one was linked with a change in the score for another, as the discussion of the two tables in the *'Making the Invisible Visible'* article linked to this paper illustrates.

Where recall was inaccurate, the cross-checks made the inaccuracy visible by revealing inconsistencies, referred to in the main article. For example, inconsistencies might appear between a change in the proportion of staple food obtained from purchases (in the *staple food score table*) and a relative lack of change in the proportion of expenditure that went on staple food (in the *expenditure score table*).

Or inconsistencies might appear between changes in household purchases revealed by the women's score-tables and those revealed by the men's score-tables. Again, the score tables helped make the invisible visible, through various comparisons. Comparison is both a fundamental psychological process and is central to many PLA methods (see section 2.3 below).

2.2.2 Anchoring and adjustment – the use of a memorable reference point

The other way of ensuring that villagers' recall was reasonably accurate was by *anchoring*. In many situations, people make estimates by starting from an initial value that is adjusted to yield a final answer. They *anchor* on the initial value and then adjust. Tversky and Kahneman (1974) identified this principle, which they called the *anchoring and adjustment heuristic*.

A heuristic is a rule of thumb; Kahneman (2012) defines it as 'a simple procedure that helps find adequate, though often imperfect, answers to difficult questions for estimating uncertain quantities'. This definition echoes the PLA principle of *appropriate precision* ('*it is better to be approximately right than to be precisely wrong')*; this PLA idea reflects a basic principle of human cognition.

The anchoring and adjustment heuristic turned out to be particularly appropriate for this study. We used a reference year which was memorable for villagers (see section 2.2.3 below) - villagers *anchored* on this, and then *adjusted* the score.[24]

2.2.3 Availability

The use of the anchoring and adjustment heuristic involved another heuristic identified by Tversky and Kahneman, the *availability heuristic*. This refers to the process by which people make decisions based on information that is easily available in memory. We also tend to make decisions based on external data that are easily available, rather than taking the trouble to find facts and figures that are really relevant. This is like looking for your lost keys under the lamp-post, because that is where the light is best. [25]

Personal experience is generally much more 'available' than news reports; this has been termed the *prisoner of experience* principle (Gardner and Stern, 2002).

Conversely, people attach much less weight to hazards that they have not experienced themselves, or which people they know have not experienced; they are also *prisoners of lack of experience*.

The availability heuristic is involved in many behaviours, one of the most important being risk-related behaviour (Thaler and Sunstein, 2009). People assess risk by the *availability* of relevant examples - the ease with which they come to mind. Murders are generally more salient than suicides, so people tend to believe, wrongly, that more deaths result from murder than from suicide. Whether people buy insurance for natural disasters is greatly affected by recent experience. Soon after an earthquake, purchases of new earthquake insurance policies rise sharply, but then decline steadily, as vivid memories recede. If floods have not occurred in the recent past, people who live on floodplains are far less likely to buy insurance.

Availability facilitates recall, which tends to be biased towards recent, vivid, unusual, or emotionally charged examples and experiences. The availability heuristic helped to explain how I was initially locked into thinking that the 1992 Southern Africa drought would be followed by famine – I was initially the prisoner of my previous experience. Before working in Zimbabwe, I had worked in Sudan; the drought and accompanying famine I had seen there[26] was readily available in my mind when I first became aware of the depth and breadth of the 1992 drought in Southern Africa. I therefore thought it likely that it too would be followed by famine. However, observing some of the many ways in which rural Zimbabweans responded to the drought, and hearing their accounts of their varied activities, helped me to change my '*mental map'*;[27] their responses to the drought became the main focus of the study I subsequently organised.

Tversky and Kahneman also found that the choice of *anchor* point can influence the answer, so care must be taken in choosing it; its primary characteristic is that it should be easily available (memorable) to participants. One of the first questions we asked villagers was whether 1991, the comparison (baseline reference) year we used, was a relatively typical year for rainfall. All said that it was.

2.2.4 Availability and visibility

The visual nature of the score-tables (and other participatory methods) enhances the availability of the findings they summarise. Things that can be visualized are easier to understand, store, recall and respond to than those which are purely numerical – which is why icons have become so widely used in the digital age. Visibility is another feature (in addition to the comparisons they involve – discussed below) that gives participatory methods an advantage over questionnaires.

2.3 Comparisons as cross-checks and as sources of information

Because the main focus of the study was on six interlinked elements of rural livelihoods, changes in scores within the score-table for one element (e.g. obtaining food) were connected with those for others (e.g. expenditure and income). Comparing these changes provided a further cross check on the accuracy of villagers' recall: we could see (by comparing the flip-charts we kept) if an increase in the proportion of food obtained from purchases was reflected in an increased proportion of expenditure spent on maize-meal.

Comparison is often an important influence on behaviour (see also Sen, 2001). It is a fundamental psychological and behavioural process:

- It is involved in many aspects of cognition and social behaviour. 'The mind is wired so that we are always looking at things around us in relation to others… This holds true for physical things... for experiences... and for ..emotions and points of view.' (Ariely, 2009). See also Weber (2012).
- Social comparison is a fundamental psychological process (Festinger, 1954). People compare aspects of themselves and of their lives with those of other *reference persons* or *reference groups*. The things compared include physical appearance, pay, clothes and consumer goods.
- Social comparison makes an important contribution to subjective well-being (Frank, 2010). It also influences life-expectancy (Wilkinson and Pickett, 2010).
- Comparison is ubiquitous in economic behaviour (Frank, 1993, 2010)

Comparison is a common feature of various PRA methods (Chambers, 2009). It is fundamental to the PRA principle of triangulation, for example. Its value lies not only in its use for cross-checking; it is also an important source of information about differences and power relations, especially when used together with similarity, another basic principle of behaviour (see sections 1.1.2 above, and 2.4 below).[28]

2.4 Interactions between principles of behaviour

Interactions between principles of behaviour are involved in almost all applications of participatory methods. Learning is one example**.** Interactions between comparison and similarity can generate new insights. Comparing the results of a participatory method between different gender, wealth or age groups (each consisting of similar people) can produce various insights into the power relations within a community, as well as other kinds of information.

Behaviour change is another example where interactions are central. Interactions between several principles of behaviour and participatory methods have been used to bring about behaviour change on a large scale in a relatively new approach to sanitation, described in section 3.3. This involves, among other principles, similarity, autonomy, imitation and social learning; it also involves the avoidance of reactance – what is not done is often as important as what is done.

Heuristics and other principles of behaviour do not usually operate in isolation – two or more often interact with each other. Two kinds of interaction are described in the next section: those that influence the perception of risk, and those that influence responses when risks materialize as crises or disasters.

2.4.1 The affect heuristic – the role of emotion in the perception of risk

In the perception of risk, the availability heuristic often interacts with another heuristic, the *affect heuristic* (*affect* is the term psychologists use for the emotions). This heuristic concerns the way in which cognitive judgments about risk (probability and severity) interact with and can be heavily influenced by emotional factors (Slovic, 2000 and 2010; Weber, 2012).[29] Emotions are discussed further in the next section.

> *A striking example of this heuristic is the increase in deaths caused by traffic accidents in the US after the 9/11 attacks. The attacks killed over 2,800 people, but an additional 1,600 deaths in 2002 resulted from people switching to driving in the following year, according to a recent study.[30] The 'availability' of the risks involved in flying was greatly increased by the fear of terrorism. In contrast, the 'distributed risk' of driving is much less available; very few traffic accidents are reported, and so the risks they involve are far less salient. Of similar importance, the perceived risk of a traffic accident does not elicit the same kind of fear as does the perceived risk of a terrorist attack.*

2.4.2 Interactions between principles of behaviour that affect responses to crises

Interactions between certain principles of behaviour help explain why the overall response to appeals for donations following the 2004 Indian Ocean tsunami was so large. In the UK more donations were made more quickly to the Disaster Emergency Committee's tsunami appeal than to any previous appeal coordinated by the DEC[31]. In 2 months, £300m was raised in the UK – over 8 times the amount given to the Disaster Emergency Committee's Sudan appeal, which had been running for 4 times as long (Eldridge, 2005).

Three months after it occurred, donor commitments were well over half as much again as those for the other 16 'forgotten emergencies'; appeals for all of them had been running for much longer than the appeal for the tsunami.

Several principles of behaviour interacted to generate these large responses. They included

- ***visibility:*** *dramatic images (particularly video) of devastation in several different countries*
- ***availability:*** *news and images from holidaymakers were immediately available*
- ***novelty:*** *tsunamis were then new to most people - we are hard-wired to notice stimuli that are new or different (they trigger the emotion of surprise)*
- ***similarity:*** *several thousand people from northern countries died in the tsunami, or temporarily disappeared. More Swedes died in it than in any natural disaster in Sweden (Uzzell, 2008); in the UK, several well-known people were affected. Few, if any, Caucasians die in 'normal' emergencies in developing countries.*
- ***emotional triggering and timing****: the tsunami struck on 25 December, the time of year (Christmas) when people in high-income countries tend to be most generous and emotionally receptive; nearly all were at home, and many saw the tsunami on television only hours after it happened. The emotional impacts of these images triggered an enormous number of charitable responses – most people in the UK subsequently made donations to tsunami appeals. This triggering effect, involving certain emotions, was not dissimilar to that which visual stimuli in Community-Led Total Sanitation produce, though the emotions differ (see section 3.3 below).*

Risks are ubiquitous; they occur in all areas of work and life, and affect all income-groups. However, the lower the level of income, the fewer and less effective ways there are of reducing them and of responding adequately to them when they materialise (Banerjee and Duflo, 2012). Perceptions of risks and responses to them in the context of rural livelihoods are described by Scoones and Chibudu (1997).

2.5 Participatory methods reflect fundamental principles of behaviour – implications

The previous discussion shows how participatory methods reflect certain fundamental principles of behaviour. This has a number of implications. One is that it helps explain the effectiveness, versatility and popularity of these methods, and their ability to make the invisible more visible, as section 3.3 on CLTS below illustrates. Another is that it links participatory methods with other methods which have been derived from some of these principles. These links are explored in section 3 below.

3 Common Features Of The Two Revolutions: Illustrated by projects in the South and the North

3.1 Introduction

The introduction to this paper outlined two revolutions which have been taking place in parallel over the past 3-4 decades: the participatory revolution and a revolution in the behavioural and related sciences. They share several common features. One is that they both involve fundamental principles of behaviour, reviewed below. Another is that both have generated methods for influencing behaviour.

These commonalities are illustrated below by projects in the South and in the North that have changed the behaviours that underlie three of the most pressing problems confronting humanity. Firstly, four broad categories of behavioural principles are summarized.

3.2 Principles of behaviour - a brief summary

The term ‘principles of behaviour’ refers to fundamental aspects of human psychology that influence behaviour. Four broad categories have been discussed:

social principles *include affiliation, similarity, imitation, social learning, and social norms*

cognitive principles include: *availability; anchoring and adjustment; visual dependency*

motivational principles include *extrinsic and intrinsic motivation,* and *autonomy.*

the emotions (affect) were briefly mentioned in relation to the ‘affect heuristic;’ this refers to the way in which cognitive judgments about risk can be heavily influenced by certain emotions. The risk example illustrates how different kinds of principles can interact: a cognitive principle (availability) interacted with an emotion, fear.

> Fear is one of the ‘basic’ emotions; these concern survival (*disgust, anger, surprise*) and reproduction (*joy*). A second group of ‘higher’ emotions concern social interactions. They are principles of behaviour in the sense that they influence action. They include *love, shame, embarrassment, envy, pride and guilt.*[32]

3.3 The participatory revolution and Community-Led Total Sanitation (CLTS)

Some of the most powerful principles identified by behavioural scientists concern the effects which social influences have on behaviour (Cialdini, 2008; Kenrick et al, 2010)[33]. Correspondingly, two of the distinctive features of participatory methods are their social nature, and the social settings in which they are used. These settings facilitate various interactions: not just between people and groups, but between principles and methods which influence behaviour. These interactions are embodied in an innovative approach to one of the biggest problems confronting developing countries. It illustrates how interactions between principles of behaviour and participatory methods in a social setting can bring about behaviour change.

Community-Led Total Sanitation (CLTS) was pioneered in 1999 by a Bangladeshi NGO, the Village Education Resource Centre (VERC) under the guidance of its principal innovator, Dr Kamal Kar. By 2008 it had spread to nearly 1,500 villages, with a total population of almost 2 million. It has also spread rapidly on an international scale. The speed with which it has spread reflects its effectiveness, low cost and popularity. These features of CLTS reflect the fundamental nature of the principles on which it is based – discussed at the end of the previous section.

Open defecation is practised by over 1 billion people in developing countries; it is a major contributory factor to ill-health, particularly among children, but it is also associated with other problems for women and older girls (Chambers, 2009). CLTS facilitates interactions between principles of behaviour and participatory methods in a social setting to bring about behaviour changes on a large scale

CLTS uses participatory methods to make visible the places where villagers without latrines defecate. These include participatory mapping on the ground to show where people live and where they defaecate, and transect walks to visit and stand in those places. Participatory methods also make visible the quantities of shit (the crude local word is used) produced every day, and the ways in which it reaches the mouth. They lead to the shocking recognition that ‘we are eating one another’s shit’ (Chambers, 2009).

These methods elicit the emotions of *surprise, disgust, fear, shame* and *embarrassment.* Behaviour change often rapidly follows. People dig holes and build latrines. No material incentives are used. Moreover, no external individual household hardware subsidy is involved: communities install their own latrines with their own resources. Those who are better off help those who are too weak or poor to help themselves (Chambers, 2009; Deak, 2008; Kar and Chambers, 2008).

3.3.1 Interactions between principles

CLTS involves interactions between several principles of behaviour, in addition to those involving emotions. Several of these principles were described above. Those involved in CLTS can be grouped in three categories:

3.3.1.1 General principles

similarity – the participants all come from one community;

autonomy – they do their own analysis, come to their own conclusions, and take their own action (Chambers, 2009). This means that the actions taken are likely to be more sustainable – especially as villagers use their own resources, and do not rely on extrinsic incentives to maintain action.

3.3.1.2 Principles particularly relevant to learning

visual dependency – *faeces are generally hidden; mapping and transect walks make them more visible.*

proximal cognition – *open defecation is a '4D' problem; faeces are diffuse and relatively distant from people's homes: responses would be rapid if they defecated on their doorsteps, producing visible piles. Maps bring defecation spots together,*

time-discounting – *the delayed impacts of open defecation on health weakens their influence on behaviour; defecating behind a bush does not elicit the disgust that demonstrating visually how* 'we are eating one another's shit ' *does - this overcomes the discounting effect of delay.*

3.3.1.3 Principles particularly relevant to action

rapid feedback and availability – *in CLTS the results of the PRA methods are not taken away and analysed elsewhere, then presented to the community later. Delayed feedback tends to lead to weaker responses – another example of time-discounting. The results of information gathering and analysis in CLTS are available immediately.*

availability – *the immediate availability of these results allow participants to 'strike while the iron is hot'; to harness strong emotions while they are still burning.*

emotions – *disgust, fear, shame and embarrassment are powerful motivators of action while they last, but their ability to influence behaviour weakens over time (a variety of time-discounting). CLTS uses the emotional heat of the moment to fuel action. The initial emotion of surprise is also involved.*

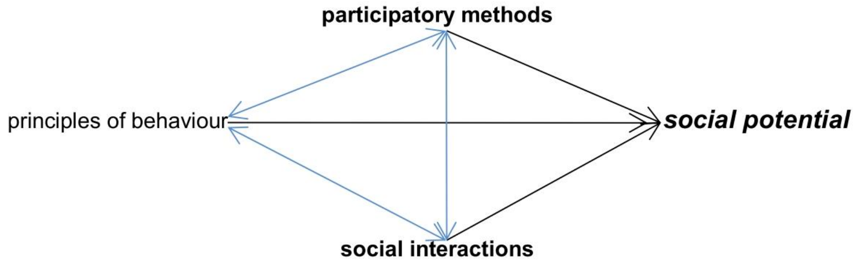
imitation and social learning - *once a few people start to dig holes and build latrines, others imitate and learn from them, especially if the 'first movers' are liked or respected.*

social norms – *once a substantial number of people dig holes and build latrines, social norms for these activities become established.*

CLTS also involves the avoidance of '*reactance*,' another principle of behaviour. Just as what doesn't happen is often as important as what happens (as with the famine that didn't follow the 1992 Southern Africa drought), so what isn't done is often as important as what is done. If outsiders enter a community and tell, or are perceived to tell, the villagers that they need latrines and must help make them, 'reactance' may result: they may react by not doing what is suggested. CLTS avoids this problem: its facilitators strive not to prescribe – the autonomy of participants (described above) is a central part of this approach and of participatory methods in general.

3.3.2 Participatory methods help realise 'social potential'

CLTS involves a three-way linkage between participatory methods, principles of behaviour, and social interactions. Together, they help realise 'social potential,' a neologism I have coined to capture this three way relationship. It is the potential of people and organisations to achieve things, when they are linked in various ways, that they could not achieve (or that they could only inadequately achieve), when acting individually.



In CLTS, participatory methods are the central component of a three-part package by which the potential of communities to build their own latrines using their own resources is realized. Before these methods were used, this social potential remained unrealised – open defecation was the norm. With CLTS, participatory methods exploit various principles of behaviour in several ways: they not only link people, they make the invisible visible, thereby facilitating both learning and action. They also motivate action – mainly by exploiting the principles listed in 3.2 above, particularly several emotions and principles of social behaviour. The Positive Deviance approach, described in a separate paper on this website and by Pascale et al (2010), also illustrates social potential; participatory methods are at its heart.

Participatory methods both facilitate and depend upon positive social interactions; they relate to each other in a feedback loop.[34] Positive social interactions - and thus participatory methods, if properly used – contribute to well-being; well-being is discussed in Appendix 1.

3.4 Using behaviour-influence methods to address major challenges: 2 examples from the US

The revolution in the behavioural and related sciences[35] has generated new insights into human behaviour and well-being. It has revealed cognitive and behavioural biases, other psychological processes, and various influences on behaviour, that were previously invisible to policymakers. These insights have generated a large and expanding variety of methods for influencing behaviour at several levels (Shafir, 2012). These methods have emerged partly through existing practical disciplines, such as marketing, organizational development, and health psychology[36]; partly through modifications (social marketing and organizational learning[37]) to some of these disciplines, and partly through the emergence of new disciplines. One of the latter is behavioural economics, mentioned in this paper. Another is environmental psychology. A third is social network science.

These methods allow behaviours to be influenced in ways that can be relatively precise - persuading people in high-income countries to turn down their thermostats or insulate their houses, for example. Developments in ICT (information and communication technology) and in social network science offer the potential to apply some of these methods on significant scales.[38] Some of the methods developed by these various disciplines have participatory elements to them,[39] though not all do.

Two examples from the US are described below; the first method was developed by environmental psychologists, the second by behavioural economists. They show how different combinations of a few principles of behaviour can be used to address the behavioural roots of two different, but behaviourally related, challenges: anthropogenic climate change, and the current financial crisis.

3.4.1 Using behaviour-influence methods to reduce energy consumption

Around 300 households in San Marcos, California, were informed about how much energy they had used in the previous weeks; they were also given (accurate) information about the average energy consumption by nearby households. The above average energy users significantly reduced their energy use. When the information was accompanied by an ‘unhappy’ emoticon, thus showing that their excessive energy use was socially disapproved, the big energy users showed an even larger reduction in energy consumption. [40]

Robert Cialdini, one of the social psychologists involved in this study, suggested that this approach should be incorporated into the business practices of a private sector energy conservation company (OPower).[41] It resulted in energy savings that were nearly costless to achieve. Several fundamental principles of behaviour were involved. The behavioural principles of *similarity, social comparison* and *social norms* were combined with two other principles, *feedback* and *loss aversion* (see 3.4.2 below, p19), to generate a behaviour influence method which linked a global issue with an everyday concern in a social setting. These principles were discussed above.

3.4.2 Using behaviour-influence methods to increase savings

One of the factors underlying the recent financial crisis in the US that began in 2007 was a reduction in household savings. On the eve of the 2007 financial crisis the savings rate in the US was -1%: individuals, on average, spent more than they earned (Loewenstein et al, 2012; see also Frank, 2009).

An innovative US employee savings programme, 'Save More Tomorrow', has produced both relatively high participation rates and increased savings rates. The former are achieved by telling employees that they will be automatically enrolled in the scheme unless they opt out – enrolment is the default option. The latter are achieved by a series of contribution increases timed to coincide with pay rises. In the pilot programme the savings rate of those enrolled almost quadrupled after three and a half years (Thaler and Sunstein, 2009). It is relatively sustainable: relatively few employees tend to drop out. Its success is based on a combination of three principles of behaviour:

> ***the principle of inertia*** refers to the tendency of people to continue doing the same thing - changing behaviour involves effort.[42]
>
> ***the principle of loss aversion*** describes the finding that, roughly speaking, losing something makes you twice as miserable as gaining the same thing makes you happy (Kahneman, 2012; Thaler and Sunstein, 2009; Weber, 2012). [43]
>
> ***the principle of time-discounting*** means that pleasant or unpleasant experiences which occur after a substantial delay are discounted – their influence on behaviour is much smaller than those which occur almost immediately.

It was the combination of principles[44] that made this programme effective: deducting the increased savings contribution from the next pay rise meant that the feeling of 'loss' associated with not being able to spend the contribution immediately was discounted by the fact that it was deducted after a delay.

The 'Save More Tomorrow' program, through its basis in fundamental principles, attracted support across the political spectrum. It was sponsored in the US Congress by an unusual coalition that included extreme conservatives as well as liberals.[45]

4 The fundamental nature of the principles of behaviour

The principles of behaviour referred to above are a small sample of many that have been extensively studied by behavioural scientists. Most of this research has been carried out since 1945, particularly in the last four or so decades, when several new disciplines have emerged, all concerned in various ways with behaviour - behavioural economics, environmental psychology, organizational behaviour, social network science, behavioural finance, and neuro-economics, for example.

Insights from this research have led to the emergence of various practical approaches for influencing the behaviours of individuals and organisations; all are based, explicitly or implicitly, on various combinations of the fundamental principles of behaviour. They include the 'learning organisation' approach (Senge, 2006), and methods developed from behavioural economics, health psychology, environmental psychology, and social network science.

These principles are fundamental; they underlie all behaviours, in all domains of life (work, leisure, family, friends, faith), in different contexts (groups, organizations, communities, networks), and in the three traditional sectors (state, private, and 'third').

Their fundamental nature is reflected in the myriad ways in which they are applied in the private sector. Their use in commercial marketing and in lobbying is briefly described below. One particular way in which they are used by businesses is to bring about organisational change. Kotter and Cohen (2012), in a major study of over 130 corporations, found that 8 steps were involved in nearly all cases of successful large-scale change.[46] Two of their conclusions are of particular relevance to the issues discussed in this paper. Firstly, 'the central challenge (in bringing about large-scale organisational change) is changing people's behaviour.' Secondly, 'changing behaviour is less a matter of giving people analysis to influence their thoughts than helping them to see a truth to influence their feelings. 'The flow of see-feel-change is more powerful than that of analysis- think-change. Almost always the core method is 'see-feel-change.' [47]

This second conclusion, from research carried out on large corporations in the world's richest country, is strikingly similar to the method, described above, which is now being used to bring about change in rural communities in one of the world's poorest countries. CLTS uses various participatory techniques to make invisible faeces visible, and thus trigger certain emotions which motivate action. The same fundamental principles underlying behaviour are involved in both cases, which in all other respects are very different.

The fundamental nature of the principles of behaviour has various implications, some of which are discussed in the following section.

4.1 Development and economic growth involve changes in behaviour

Development and economic growth involve changes in behaviour. These changes include the adoption of new behaviours and the disappearance of traditional behaviours, as well as modifications to behaviours that continue. These behavioural changes take place at various levels – among individuals, households, communities, and in organizations.[48] They occur in the public, private and third sectors.

The behaviours of subsistence farmers without safe water and sanitation, electricity, TVs, radios or phones are very different from those of even the poorest people in their capital cities; the behaviours of urban slum dwellers are in turn very different from those of the middle-class consumers who shop in air-conditioned malls, drive cars, and live in homes containing dozens of appliances, most of which influence their behaviour in various ways (remote controls, TVs, internet-connected computers, labour-saving devices).

4.1.1 Increases in the number and variety of influences on behaviour

China's history over the past 3-4 decades vividly reflects the behaviour changes involved in development, and the increased number and variety of the influences which bring them about. In 1973, during the cultural revolution, there were almost no adverts for private goods; the only public messages were exhortations to work for the public good. Now the former crowd out the latter; adverts and dozens of new influences are everywhere, many promoting high carbon, high-calorie lifestyles (Doctoroff, 2012; Gerth, 2011; Watts, 2011). Between 1986-96 expenditure on marketing increased by over 1000% in China. The expansion of marketing in developing countries in general has accompanied the emergence of 'new consumers' in these countries – between the early 1980s and 2000 almost 1 billion appeared, with a combined purchasing power equivalent to that of the US; their cumulative impact on the environment is enormous (Myers and Kent, 2004).

The behaviour changes inherent in development come about through two broad forms of influence: influences that occur by default (for example, those that occur following rural-urban and international migration, through changes in economies and societies[49], and through TV) and those that occur by design[50] Commercial marketing is the largest category of 'designed' influences; it consists of a wide range of methods which businesses use to influence the behaviours of consumers (Lindstrom, 2009 + 2012; Miller, 2010).

Other organisations and institutions also influence the behaviours of certain target groups (and their staff or members); political parties target voters and businesses; NGOs and civil society organizations target donors and policymakers, as well as those whom they are established to work for or with; Faith-based organisations (FBOs) target their members, and (to varying extents) non-members, and policymakers; academic and research institutions target students, donors (and, in some cases) policymakers.

All of these organisations use various methods for influencing behaviour, many of them adapted from business.

4.1.2 Commercial Behaviour-influence methods - many promote unsustainable behaviours

'Designed' influences are transmitted by a wide range of methods, here collectively termed 'behaviour-influence methods,' used both commercially and non-commercially. These are based, explicitly or implicitly, on fundamental principles of behaviour. These methods have increased greatly in variety, number, sophistication and aggregate power over the past half-century, particularly in the private sector.

The average American is exposed to around 3,000 commercial messages a day. Over $600bn was spent on marketing globally in 2008[51]

- **more than 6 times the target for a fund established to help developing countries adapt to climate change, a target not intended to be met until 2020**.

Adverts (which are only one of many forms of marketing) 50 years ago often took the form of simple claims. One was: 'Nothing works faster than Anadin!' Its naivety was lampooned by a comedian who followed it with '...so take Nothing.' Advertising then was little more than commercial art. Now much of it is commercialized science, exploiting basic principles of behaviour. The latest development is neuromarketing.[52]

In high-income countries, a combination of behavioural science[53] and large corporate budgets has made commercial marketing 'the most dominant force in human culture' (Miller, 2010).[54] In 2004 there were 5 times as many people employed in marketing and market research in the US as were employed as academic psychologists (Miller, 2010). The power of this force is arguably even greater in the South than in the North, due to weaker institutions, larger populations, more rapidly rising incomes, and the greater vulnerability of consumers there to marketing techniques.

Trends in commercial marketing in the South over the past 3-4 decades are marked by 3 'S' features: scale, scope and speed. Commercial behaviour-influence methods have increased in scale over this period; they now reach most of the South's 6 billion people. They have expanded in scope: they now penetrate almost every aspect of people's lives, at least in urban areas. They can change at great speeds, to sell new products or new features on existing products, and to adapt their particular sales pitches to changing circumstances. Messages on electronic billboards, and on the internet, and those sent by email and text, can be changed in hours. Sophistication is a fourth 'S feature: they are now very much more sophisticated than they were even a decade ago.

It may be no coincidence that the great expansion of commercial marketing in the South has been accompanied by a corresponding increase in the prevalence of 'lifestyle diseases' (or 'noncommunicable diseases' - NCDs) in developing countries. In many of these countries they are spreading even more rapidly than in high-income countries, and on much larger scales.[55] These diseases have recently overtaken infectious diseases to become the leading cause of mortality in SE Asia (Dans et al, 2011), and globally (WHO website).

Businesses also use behaviour-influence methods to influence policymakers and regulators, directly (lobbying), indirectly (for example, through the media) and unobtrusively (using social networks). Some of these methods are used to influence the behaviours of their staff, to promote productivity, creativity, and loyalty. Many, if not most, commercial marketing methods promote unsustainable behaviours – the behaviours that underlie unsustainable production and consumption.[56] Most unsustainable behaviours can be categorized in 3 groups: environmentally unsustainable behaviours, personally unsustainable behaviours (those leading to morbid obesity or lung cancer, for example), and financially unsustainable behaviours (accumulating excessive debts). These three groups of unsustainable behaviours are summarized in Appendix 5. They correspond to the three forms of 'behavioural crises' referred to in section 5.3.1.

4.1.3 Non-commercial behaviour-influence methods

There are many varieties of non-commercial behaviour-influence methods. Three were described above; participatory methods, and the methods used in environmental psychology and behavioural economics. The latter two sets of methods have been developed by behavioural scientists and are explicitly based on fundamental principles of behaviour, as are many of those used in social marketing (Kotler and Lee, 2011) which adapts various commercial marketing for the public good. Some of these methods have been increasingly applied in the North over the past decade by central and local governments (DEFRA, 2011; Halpern, 2009; Kelman, 2005) as well as by civil society organisations.

Participatory methods also involve these principles, as described above*;* they have been developed largely in the South by practitioners in academia and in the third sector. They are used as an exemplar of non-commercial behaviour-influence methods in the discussion below. Other methods used in the third sector are also (implicitly) based on these principles, particularly principles of social behaviour – the microfinance methods pioneered by the Grameen Bank in Bangladesh, for example, and those used in the Positive Deviance approach; [57] these two approaches realise social potential, described in section 3.3.2

Third sector organisations use behaviour-influence methods not only to influence the behaviour of their main target groups, but also to influence the public, potential donors and policymakers. Many of these methods are modifications of methods (still based on fundamental principles) used in the private sector. For example, some charities post trivial gifts, or even a few coins, to householders; they evidently hope that by exploiting the basic behavioural principle of reciprocity, recipients will send them donations. However, if people feel they are being manipulated, the technique can backfire - it elicits the principle of reactance, not reciprocity (see section 1.2.1 above). This illustrates why it is important for organizations in the third sector to understand the principles underlying the methods they use.

In contrast, the behaviour-influence methods used in the private sector are mostly more subtle; one of the secrets of the success of marketing by businesses is that people are unaware of most of the many hundreds of commercial messages that they receive every day (Ariely, 2009; Cialdini, 2008; Lindstrom, 2012).

The following section summarises several features of behaviour-influence (BI) methods.[58] Other features are outlined in Appendix 3.

4.2 Think Global, Act local, Link Global – some features of BI methods

4.2.1 Linking global problems and everyday life

Behaviour-influence methods, because they reflect fundamental principles of behaviour that operate in everyday life, allow linkages to be made between global problems and everyday life (see the OPower example, section 3.4.1). They underlie international problems and also the concerns of ordinary people, such as debt and lifestyle diseases. For example, the principle of 'time discounting' (see footnote 19) helps explain why people spend now and accumulate debt that falls due only later; and also why people smoke and eat excessively, despite the adverse effects on their health (pleasure now, discounted pain later). This principle, together with visual dependency and other principles - particularly those involved in social behaviour - helps explain why individuals and organisations continue to engage in behaviours which generate green-house gases (GHGs), despite mounting evidence of their impacts on climate.

Behaviour-influence methods both operate in everyday life and also relate to everyday life: many of the techniques are similar, if not identical, to those with which people are familiar - commercial marketing already uses them, or variations of them extensively. Behind every commercial message is a behaviour-influence method, usually based on several decades of research and market-testing.

4.2.2 Addressing global issues through small scale interventions

Paradoxically, the small scale of behaviour-influence methods makes them appropriate for addressing certain global issues, because they match the scale of some of its main causal factors – the behaviours of individuals (and organisations). Problems which seem immovable when viewed as massive and global are less intractable once they are reframed and addressed as behavioural challenges,[59] especially when addressed in a social setting, which usually also means a local setting - hence the notion 'Think global, act local, link global,' discussed in section 4.2.5 below (see Uzzell, 2008, on a related issue).

> *'Big problems are rarely solved with commensurately big solutions. Instead, they are most often solved by a sequence of small solutions, sometimes over several weeks, sometimes over decades' (Heath and Heath, 2011).*

Heath and Heath's conclusion, based on extensive research into 'how to change things when change is hard' (the sub-title of their book, *'Switch')* reflects one of the central elements in the 8-step sequence of steps in Kotter and Cohen's recommendations for bringing about large-scale organisational change: accomplish various small, short-term wins (see footnote 46; Feedback, section 1.6, p11; Positivity, Appendix 1, pp30-1).

The lack of safe sanitation is an international problem, affecting over 1 billion people. However, when reframed in terms of individual behaviour - open defecation - and addressed by communities using participatory methods based on behavioural principles, a global problem is transformed into a series of local challenges (see section 3.3, pages 16-17).

Similarly, asking urban householders in the US to reduce their GHG emissions to help mitigate climate change is not a very effective approach. However, when climate change is reframed and linked to an everyday concern, it is transformed into a local neighbourhood challenge. Householders in the OPower example described above reduced their GHG emissions when informed that their emissions were considerably higher than those of their neighbours, and that they were currently losing money every month by paying unnecessarily high fuel bills in comparison with people in similar houses (see section 3.4.1, page 18).

Several fundamental principles of behaviour were involved, described in sections 3.4.1 and 3.4.2 on pages 18-19. The social behaviour principles of *similarity, social comparison* and *social norms* were combined with two other principles, *feedback* and *loss avers*ion, to generate a behaviour influence (BI) method which linked a global issue with an everyday concern in a social setting.

'Small changes can produce big results' (Senge 2006) is one of the central insights of the learning organisation approach (see pages 11, 19 and 23); organisations, particularly learning organizations, are among the most important 'transmission mechanisms' which can scale up the effects of small influences on behaviour. Some of these transmission mechanisms are discussed in section 4.2.3.

4.2.3 Scaling up behaviour-influence methods through organisations, social networks and ICT + the social media

Behaviour-influence methods can be applied at different levels of society - with individuals, with households, in communities, in organisations and nationally.[60] One of several misconceptions about these methods is that they can only be used on a small scale, and so they are not applicable to large-scale phenomena such as climate change, or international financial crises. This misconception is misplaced; size does not matter, because the small-scale influences of behaviour-influence methods can be scaled up, and their spread can be accelerated, by certain transmission mechanisms. Three of the most powerful sets of transmission mechanisms are organisations, social networks, and ICT and the social media. [61]

Organisations are one of the principal means by which technological innovations are scaled up – Microsoft, Apple and Google are examples. They can similarly scale up behaviour influence methods, as illustrated by Kotter and Cohen's (2012) research (page 19); Eyre et al (2010) describe the lessons learned from the Energy Saving Trust's experiences in engaging people on a large scale in saving energy in the UK.

Organisations are the main means by which people are brought together for particular purposes in each of the three sectors - state, private and 'third'**.** The same principles of behaviour operate in all organisations, although they are packaged differently and used for different purposes by different types of organizations – the contexts in which they operate affect the influences they have.[62] Kotter and Cohen, in their study of large-scale change in the private sector, emphasized the centrality of the linked roles of visibility and the emotions, the same principles that a third sector organisation used in the CLTS approach.

Kelman (2005) implemented large-scale change in the public sector by applying a number of principles of behaviour to a particular issue. He was asked by the Clinton administration to reform procurement across the US federal government's many agencies, which in the early 1990s were collectively spending $320 billion on discretionary goods and services. He identified several principles which were preventing change (for example, *consistency and overconfidence*) and exploited others to act as accelerators for change (*familiarity and social norms*, for instance).

Social networks can also spread influences on behaviour on large scales (Christakis and Fowler, 2011; Gladwell, 2002; Ormerod, 2013; Watts, 2004). The connections which individuals, groups and organisations have (Carley and Christie, 2000; Senge et al, 2010), particularly with other organizations, allow the application of behaviour influence methods and their impacts to spread, sometimes among large numbers of people. CLTS is an example of an approach which was developed by one NGO in one community, but has now spread internationally, through its international network (Chambers, 2009*).*

The same principles that influence the behaviours of individuals are also central to the workings of organisations and networks. Social norms, for example, play a key role in organisational culture (Beinhocker, 2007), and they are also one of the main drivers of the processes by which behaviours (and beliefs) spread through social networks (Christakis and Fowler, 2011).

'Never doubt that a small group of thoughtful, concerned citizens can change the world. Indeed, it is the only thing that ever has - depending on their ability to build or connect with larger networks.' [63]

The social media, and information and communications technologies (ICT), together comprise a more recent, and immensely powerful, set of transmission mechanisms for scaling up influences on behaviour, and accelerating their spread (O'Neill and Boycoff, 2010). Tapscott and Williams (2008 + 2011) argue that collaborative innovation, facilitated by these mechanisms, has the potential to transform not only our economies but also society and its many institutions. Shirky (2011) suggests that 'the free time of the world's educated citizenry (might be treated as) an aggregate, a kind of cognitive surplus.' His book, '*Cognitive Surplus,*' provides many examples of how ICT and the social media can help connect small-scale, local actions and thereby both scale up and accelerate their impacts.

Shirky concludes by suggesting that ‘the kind of participation we’re seeing today, in a relative handful of examples, is going to spread everywhere and to become the backbone of assumptions about how our culture should work.’

This is more likely to happen if the principles underlying behaviour and those underlying the contexts[64] in which behaviour operates are better understood. It is also more likely to happen if both the influences promoting unsustainable behaviours and those promoting, or which could promote, sustainable behaviours are better understood. The failure to take the former adequately into account when designing policies and programmes to encourage the latter is an example of *competition neglect* (see postscript 1 to Appendix 8, p42). Both kinds of influence need to be considered, in a form of analysis which might be termed ‘behaviour-influence analysis’ (Appendix 8, p41).

4.2.4 Complementing large-scale collective action with connected small-scale actions

Large-scale collective action is a common response to international problems. However, it has failed in several high-profile cases. It is now over 13 years since the MDGs were agreed, but with less than 2 years left until the 2015 target date, the sanitation target will not be met. With climate change it is now 16 years since the Kyoto Protocol was initially adopted in 1997; the 2009 Copenhagen summit failed and the Durban and Doha climate change conferences in 2011 and 2012 again failed to produce a binding international agreement that would reduce GHG emissions.

There are various reasons for the failure of collective action in these cases (see section 5.3, pages 26-9). One is that they are disproportionately top-down initiatives. Another is that they take insufficient account of the variety of influences on the behaviours of individuals and organisations. One principle of behaviour which the Kyoto Protocol has activated is reactance – the US has not yet ratified it, and probably never will, and Canada has now withdrawn from it.

In contrast, CLTS and the OPower approach have been strikingly successful[65], largely for the reasons described above:

- They are both bottom-up initiatives.
- They both match methods to underlying causes: in each case, specific behaviours are primary causal factors; both approaches use methods that influence particular behaviours.
- Their methods are based on principles of behaviour, sometimes several interacting principles.

The success of CLTS has been doubly amplified, firstly by the participatory nature of its approach, and secondly through the networks to which its originating NGO belongs.

Its success, and the success of some other behaviour-influence methods used by networked organizations, suggests an additional approach that can complement large-scale collective action: connected small-scale actions.

4.2.5 Scaling up social potential – think global, act local, link global

CLTS is a behaviour-influence approach involving a three-way linkage between participatory methods, principles of behaviour, and social interaction. These three elements help realize ‘social potential’ - the potential of people and organisations to achieve things, when they are brought together in various ways, that they could not achieve (or that they could only inadequately achieve), when acting individually (see section 3.3.2, p17-18). To varying extents, other behaviour-influence approaches also realise social potential. The Grameen approach to microfinance is an example: it involves providing loans to people in groups. This form of lending has two particular benefits: it uses social influences both as ‘*social collateral’* and thereby as a means of minimizing defaults, and it makes support more cost-effective**.** [66]

In both these cases the positive effects of realising social potential have been scaled up by the organizations which pioneered these approaches, using social networks (Christakis and Fowler, 2011). They are effectively putting into practice an enhanced version of the adage ‘Think global, act local’ - think global, act local, *link global*.’

CLTS and the Grameen approaches are prime examples of how this can be done. Unsafe sanitation and the unavailability of credit for poor people are global problems, which CLTS and the Grameen Bank transform into local challenges; they then facilitate the diffusion of their successful methods through their national and international global links. Grameen is now an internationally recognized brand.

4.2.6 Conclusion to section 4

This section began (pages 20-21) by describing development in terms of changes in behaviours at different social and economic levels. In the past few decades the scale and speed of these changes have markedly increased; they are now taking place among far larger populations, and much more rapidly, in low and middle income countries than was the case in high-income countries when they had comparable GDP levels. Several factors contribute to these differences. Among the most important of these are the new information and communication technologies (ICT) and the social media that have emerged in the past few decades.

Another comprises the increases in the number, variety, sophistication and aggregate power of 'designed' influences; these increases have occurred over the past 4-5 decades. By far the largest proportion of 'designed' influences comes from the private sector, mainly in the form of marketing and lobbying. As noted in section 4.1.2 (pages 20-21), many of the behaviour-influence methods businesses use currently promote several kinds of unsustainable behaviours (summarised in Appendix 5, pages 38-9).

'Designed' influences, in the form of various behaviour influence methods used by third sector organisations, some government bodies and a minority of businesses, can also be used to promote sustainable behaviours. They have various features and advantages, some of which were outlined above. Many of these methods have emerged from the two revolutions described in the introduction. However, they are almost invisible; they are scattered under various headings, and so most policymakers and practitioners, particularly in developing countries[67], seem unaware of their effectiveness and aggregate power, and their other advantages.

This is one of three reasons for the suggestion, in the following section, that a greater interplay between these two revolutions should be promoted.

5 The emergence of behavioural crises, and the need for a convergence between two revolutions in learning and practice

5.1 Two revolutions in learning and practice

In the past few decades two revolutions have been taking place, both involving behaviour. The participatory revolution has generated a wealth of insights into the lives and activities of people, mostly in the South, who were previously largely invisible to policymakers. It has developed a broad and expanding range of methods that allow once marginalized groups to exert greater influence than previously over things and processes that affect their well-being. These methods enable poor and marginalized people to contribute actively to gathering and analysing information, where previously it was taken from them and analysed elsewhere. They act as catalysts for groups and communities to take action. They enable poor people to participate in making and implementing decisions that affect them, where previously these decisions were taken elsewhere. Importantly, they also bring about changes in the behaviours and mindsets of development practitioners.

A revolution in the behavioural and related sciences[68] has generated new insights into human behaviour and well-being. It has revealed cognitive and behavioural biases, other psychological processes, and various influences on behaviour, that were likewise previously invisible to policymakers (Ariely, 2009; Cialdini, 2008; Kahneman, 2012; Shafir, 2012). These insights have generated a large and expanding variety of methods for influencing behaviour at several levels.

These methods have emerged partly through existing practical disciplines, such as marketing, organisational development and health psychology; partly through modifications (social marketing and organisational learning[69]) to these disciplines, and partly through the emergence of new disciplines. Among the latter are behavioural economics, environmental psychology and social network science.

Developments in information and communications technology and in social network science offer the potential to apply some of these methods on large scales.[70] By combining principles and methods, behaviours can be influenced in ways that are both relatively precise (persuading people in high-income countries to turn down their thermostats or insulate their houses, for example) and significant in scale.[71]

The examples described above illustrate how the application of certain fundamental principles of behaviour in various combinations can bring about significant changes in behaviour, sometimes on a large scale. They show how different combinations of some of these principles can be used to address the behavioural roots of different challenges confronting both high-income and low-income countries – see '*social learning'* on p8.

5.2 Several commonalities and two differences between the two revolutions

These two revolutions have much in common. Both involve behaviour. Both have made the invisible more visible: they have revealed biases and misplaced assumptions - concerning cognition and behaviour, and the role of the emotions - that have influenced policymakers and the policies and programmes they have implemented.[72] They have shown how people and organisations can modify their behaviour in ways that benefit them and wider society and the environment; they have developed a wide range of 'behaviour-influence methods' that can help bring about these behavioural changes.

However, there are two striking differences between them, each involving a pair of mirror images. The first concerns their location. The participatory revolution has taken place mostly in the South, though not entirely: participatory methods have also been used in the North.[73] The revolution in the behavioural sciences has taken place almost entirely in the North, though behavioural economists have begun to work in the South in the last few years.[74]

The second difference between them concerns the insights they have produced. To oversimplify, these insights are mirror images of each other. The revolution in the behavioural sciences has shown that we are not as 'free to choose,'[75] as we like to think: we are subject to many more cognitive (and social) biases, and we are affected by many more emotional, social and contextual influences than we realize (see Appendix 6, page 40, on 'Behavioural jujitsu').

> *These influences exert a lot of power over our behaviour, (but) our natural tendency is to vastly underestimate or completely ignore this power. …We are pawns in a game whose forces we largely fail to comprehend (Ariely, 2009).*[76]

With influence, 'everything matters.'[77] Large plates influence people to eat more than small plates; short, wide, glasses influence them to drink more than tall, narrow glasses containing the same volume (88% more, in one experiment[78]). On average, people eating with three others eat about 75% more than the amount they eat when eating alone (Thaler and Sunstein, 2009). These influences ripple out through social networks up to '3 degrees of influence.'[79] A landmark study published in 2007 found that the risk that X would become obese after a certain period increased by 45% if X's friend became obese, by 20% if X's friend's friend became obese, and by 10% if X's friend's friend's friend became obese. [80]

Increases in individual and national wealth are associated with increases in the number, variety, sophistication, subtlety and aggregate power of these influences (see section 4.1.1). This involves an increase in the number of influences of which we are unaware.

> '*Civilization advances by extending the number of important operations which we can perform without thinking of them.' (A. N Whitehead, 2011)*[81]

Conversely, the participatory revolution has revealed how materially poor people can exercise greater influence than is often assumed, if they are aware of their potential and how to realize it. Sometimes this awareness already exists; where it does not, or where it is limited, participatory methods can facilitate its emergence.

5.3 A convergence between the two revolutions?

Currently around five out six people in the world live in the South. By 2050 global population will reach around 9 billion – almost 3 times as many as in 1950. By then around six out seven people in the world will live in countries that are currently designated as 'developing.' If global population were divided among the days of the week, by 2050 the people in the North would be confined to Monday, and the rest of the week would belong to the people in the South.

By 2050, the various problems that have disproportionately adverse impacts on poor and marginalized people in the South are likely to affect even more people, to an even greater extent, than they do now, if current trends continue.

However, the increasingly interconnected nature of the world means that problems which originate in high-income countries – such as the current financial crisis, unsustainable consumption, and lifestyle diseases – can spread rapidly to low-income countries, and vice-versa. Examples of the latter include various zoonotic diseases such as avian flu, which arise from interactions between human behaviour and the local environment.

These two revolutions have developed relatively independently of each other over the past few decades. But they have much in common – literally, in the case of the commons:

'To act effectively, it is necessary to see events from the perspective of those acting in the situation,'

was one of the conclusions of an authoritative report published in 2002, 'The Drama of the Commons,' [82] reviewing over 30 years of interdisciplinary research into how best the commons can be managed.

The report was edited by, among others, a leading behavioural scientist (Paul Stern) and the first woman to win the Nobel Prize for Economics, the late Elinor Ostrom. Much of her research focused on the behaviours of individuals and communities in the South, and on how they have developed effective institutions for managing the commons – often without the need for extrinsic incentives, just as with CLTS. In one of her most important books,[83] Ostrom identified eight "design principles" of stable local common pool resource management. [84] These design principles involve several basic principles of behaviour: for example, similarity, familiarity, feedback and reciprocity.

Participation in the management of such resources by the members of the local communities who benefit from them is essential if they are to be sustainably used; it is inherent in several of Ostrom's design principles.

The Nobel Prize committee succinctly summarized one of Ostrom's major achievements. She 'challenged the conventional wisdom' by demonstrating how local common pool resources (such as forests, grazing land, local water resources) can be successfully managed by local communities 'without any regulation by central authorities or privatization.'[85]

One reason for promoting a greater interplay between these two revolutions is to cross-fertilize different varieties of learning and methodology. The revolution in the behavioural sciences has provided insights into the fundamental principles of behaviour; knowledge of these principles can improve both learning and practice in development. The participatory revolution has revealed the benefits that come from enabling ordinary people to contribute fully to the information gathering and analysis necessary for the development and implementation of policies and programmes.

These benefits can be described in different ways (cross-checks, feedback, appropriate precision for example) but they can be summarized in terms of increasing the likelihood of sustainability. Participatory methods can contribute significantly to the sustainability of the policies and programmes based on information through these methods. There is an additional reason for promoting a greater interplay between these two revolutions, discussed in the following section.

5.3.1 Behavioural crises – the changing nature of global problems

A second reason for promoting a greater interplay between the two revolutions concerns the changing nature of global problems. An increasing proportion of the challenges confronting societies around the world have substantial behavioural components (Loewenstein et al, 2012).[86] Such crises might be termed behavioural crises. Three groups of these challenges are, firstly, climate change and other environmental problems; secondly, 'lifestyle diseases' such as lung cancer and diseases associated with obesity[87]; and, thirdly, financial and economic crises.[88] These three forms of behavioural crises correspond to the three forms of unsustainable behaviour referred to in section 4.1.2 (pages 20-21) and in Appendix 5 (pages 38-9).

The substantial behavioural components of these crises are significant factors in the frequent failure of conventional attempts to address them.[89] One of the defining features of these crises concerns one of the most important influences on behaviour, feedback. (Other features are summarised in the footnotes[90]). All three forms of behavioural crises are characterised by delayed, inadequate or absent feedback; and usually also by an imbalance between positive and negative feedback. The ice albedo effect, discussed in section 1.6 above (p 11), illustrates this imbalance in the case of climate change.

A similar imbalance between positive and negative feedback underlies the obesity pandemic. The 'positive feedback' which is closely associated with the immediate and specific pleasure (or convenience) of eating certain foods and drinking calorie-rich beverages greatly outweighs the negative feedback that is barely provided by obesity and its associated lifestyle diseases - these follow only after delays of many years.

Similarly, in the years preceding the 2007-8 financial crisis, key individuals and organisations involved received little or no negative feedback concerning those of their activities which contributed to these crises. However, they received various forms of positive feedback - material and social - which were mostly the opposite of '4D' (see section 1.5 above, pages 10-11): bonuses, and social feedback from their peer and reference groups, and from those to whom they reported. Conversely, the adverse consequences of their decisions and actions were largely '4D' (see footnote 88, page 55)

Senge (2006) succinctly summarises the 'core learning dilemma' that confronted financial organizations before the crisis, and still continues to do so:

> *'We learn best from experience but we never directly experience the consequences of many of our most important decisions.'*

5.3.2 The frequent failure of conventional attempts to address behavioural crises

The frequent failure of conventional attempts to address behavioural crises is illustrated in the case of climate change. There are three main approaches to climate change: international collective action, market based approaches, and the use of renewable energy technology and energy conservation measures. They have so far all failed, to varying degrees; or, at least, none has even remotely approached success:

- it is now 16 years since the Kyoto Protocol was signed; the Copenhagen summit failed, and the Durban summit again failed to produce a binding international agreement limiting GHG emissions.
- in April (2013), the European Parliament voted to reject an attempt to bolster Europe's flagship environment programme, the Emissions Trading Scheme. Carbon prices, already low, plunged further, to €2.75 a tonne: 11% of their price (€25 a tonne) in 2008.
- the renewable energy technology and energy conservation approach is proceeding extremely slowly; renewable energy is only a small proportion of total energy supplies, despite many decades of research and development. Indeed, subsidies for the development of renewable energy sources have been being cut back in many countries in recent years, for instance in the UK. The emergence of fracking in the past decade has further impeded the development of alternative technologies.

The failure of international collective action is perhaps the most egregious of these failures. It was analysed almost 50 years ago by Mancur Olson, whose seminal book 'The Logic of Collective Action' (1965) [91] in some respects predicted the difficulties that the Kyoto Protocol would face over three decades later.

UNEP's GEO-5 report (2012), launched to coincide with the UN's Rio+20 conference on sustainable development, starkly illustrates the failures of certain conventional approaches to environmental problems in general. The report found that, out of 90 internationally agreed goals and objectives assessed, significant progress could only be shown for 4: a success rate of under 5% (over many years, in some cases).

5.3.3 Why have the 3 main approaches to climate change had so little success?

A major reason for the failure of the three main approaches to climate change is that these approaches - or at least the first two - have not adequately addressed the primary cause of climate change: individuals' and organisations' behaviour, a term which covers inaction as well as action. The issue is not that they have not addressed behaviour at all: all do so, to varying extents. The problem is that they have not *adequately* addressed behaviour. Addressing behaviour is not the pivotal and explicit approach that it should be, given the central role of behaviour in climate change.

> *The three main approaches – or at least the first two - pay too little attention to the range of social, cognitive, emotional and motivational factors that influence behaviour. Economic approaches, for example, place disproportionate emphasis on just one, albeit very important, type of influence on behaviour, incentives. The failure to pay sufficient attention to these various influences may have contributed to the failure of the Copenhagen climate change summit (Smith, 2012). The American delegation did not seem to adequately understand how the behaviour of the Chinese delegation was influenced by certain principles of behaviour, and vice-versa. The two delegations misinterpreted each other's negotiating styles; they did not realise that the ways in which they spoke and acted resulted more from interactions between these principles and national cultures than from particular intentions. They did not apply the conclusion quoted above from* 'The Drama of the Commons' *report.*

The principles of behaviour operate both by design and by default. They not only underlie 'designed' behaviour-influence methods; they also influence (by default) the behaviours of individuals, groups and organisations - and perceptions of their behaviours - even when such methods are not explicitly used.

For this reason this paper has described behaviour-influence methods in terms of the fundamental principles of behaviour on which they are based. Even if such methods are not used in a particular situation, these principles nevertheless influence the behaviours of individuals, groups and organisations; and they thereby affect the outcomes of other approaches to issues – such as the three main approaches to climate chang*e.*

In contrast, the relative success of CLTS - though addressing a different kind of behavioural crisis – is due in large part to the fact that it reflects a variety of principles of behaviour. Moreover, it is often, though not inevitably, sustainable (Appendix 2), partly because it does not rely on extrinsic incentives (see page 10).

Many behaviour-influence approaches involve methods which are well-matched to the wide variety of factors that influence the behaviours that underlie anthropogenic climate change, other environmental problems, the growing pandemic of lifestyle diseases, and the apparent increase in the frequency and severity of financial crises over the past few decades.

The relative lack of attention paid by policymakers to behaviour-influence approaches to climate change is at first sight puzzling, because the two revolutions have generated a very large and increasing number of methods for influencing behaviour. Moreover, these methods have several attractive features. The main advantages of such approaches are that behaviour-influence methods are already in widespread use around the world. They are tried and tested – they are effective; they are often cost-effective and time-effective; and many are low-tech and locally appropriate.

They relate to everyday life – unlike international conferences or carbon trading, for example – as they are already widely used, every day, to influence a wide range of activities (and values). They promote positive social interactions, and can promote well-being (see Appendix 1, pages 30-32).

One reason for this lack of attention may be that these methods have several of the '4D' features that result in a similar lack of attention being paid to the adverse impacts of climate change (see section 1.5 above) - they are *diffuse,* they are scattered under *different* headings, and they are relatively *distant* from the experiences of policymakers.

This seems to be particularly true for participatory methods; several principles of behaviour help explain why. Policymakers tend to be more familiar with the analyses of economists than they are with those of behavioural scientists (Kahneman, 2012a);[92] similarly, they tend to be more familiar with economic concepts than they are with the concepts which participatory practitioners use. The PLA principles of '*Handing over the stick'* and '*putting the last first'* are conspicuous by their absence from most policy speeches, partly because putting them into practice would imply a certain loss of power for policymakers; loss aversion is a basic principle of behaviour. Policymakers are prisoners of their experience, but they are also prisoners of their lack of experience: their lack of first-hand experience of participatory methods, coupled with their lack of experience with quantitative data produced by participatory methods. Since the early 1990s these methods have increasingly generated such data, but they have attracted much less attention from policymakers than have the outputs of standardised questionnaires. [93]

In short, participatory and other behaviour-influence methods, and most of their outputs, are not as *'available'* (see 2.2.3) to policymakers as are the three conventional approaches to climate change, which are also the main approaches to most other major crises. This constitutes an additional reason for promoting a greater interplay between the two revolutions: to make these methods and their outputs more available, not just to policymakers, but also to researchers and practitioners.

The revolution in the behavioural and related sciences has taken place almost entirely in the North; conversely, the participatory revolution has taken place largely in the South; the separate development of these two revolutions, coupled with the mostly small-scale and scattered nature of the methods they have generated, has meant that these methods have not been as noticeable as other more salient approaches – large international conferences, for example.

6 Conclusion

The 30th and 40th anniversaries of the seminal publications which made significant contributions to the two revolutions take place in 2013 and 2014[94]. A fitting way of marking these anniversaries would be to promote a greater interplay between both revolutions, firstly to cross-fertilize different varieties of learning and practice. Secondly, synergies are likely to emerge that should contribute greatly to developing solutions to problems that currently seem intractable (see Appendix 3.5, pages 34-5)

A greater interplay between these two revolutions would generate an approach to behavioural crises that matched the defining feature of these crises - the behaviours of individuals and organisations. This would facilitate the emergence of ways for connecting environmental and developmental issues with other major crises, and with the concerns of everyday life, in a positive manner, through the principles of behaviour that underlie all of them. The fact that these principles also provide the basis for behaviour-influence methods should also facilitate the development of synergies between them (see Appendix 3.5 for 2 examples).

By complementing large-scale national and international initiatives with connected small-scale actions, a convergence between the two revolutions would put into practice a version of the adage ‘Think global, act local’ that is relevant to the connected world of the new millennium: ‘Think global, act local, link global’.

Incorporating the central theme of this paper, this can rephrased as ‘Thinking about, leveraging and linking influences on behaviour: ’*ThinkFluence’.* [95]

0 Appendices

1 Appendix: Positivity, Ubuntu, well-being and flourishing

1.1 Positivity and ubuntu

Behaviour-influence methods which involve social interactions can leave participants feeling paradoxically positive, despite the negative nature of the problems they often address; the more they involve the people (or organisations) whose behaviour they influence, the more likely that they will engender positive feelings. Positive feelings can be engendered in particular by behaviour-influence methods which involve participation. They are elicited by the participatory methods involved in CLTS, for example, in several ways (Chambers, 2009) and by the Positive Deviance approach (see ‘Social Potential,’ pp 17-18, above).

They not only improve the local environment; they also enhance well-being (discussed below) and self-esteem, particularly among women. These outcomes, which are not captured by economic cost-benefit analyses, result from processes that are central to participatory approaches; participants do their own analyses and take action themselves. Such benefits, which are hard to quantify but are nevertheless real, emerge not only in projects which involve specific participatory methods, but also in those where a more general participatory approach is adopted (Gardner and Stern, 2002; Ostrom et al, 2002).

For example, participatory choice in community resource management gives local people a positive sense both of autonomy and of fairness (another behavioural principle). It consequently builds support for whatever intervention is ultimately chosen, and increases the likelihood that participants will internalize any new rules (Gardner and Stern, 2002). Political conflict and the need for expensive enforcement are thereby reduced. Again, participation is likely to increase cost-effectiveness, but it does more than this: it tends to increase the sustainability of the intervention in question (see below), partly because of its cost-effectiveness, partly because of the principles involved (autonomy, fairness); and partly because of the positivity it often engenders.

Positivity has several beneficial aspects:

- *‘embrace error’ and social learning:* the positivity of participatory approaches is captured in the PRA principle ‘embrace error,’ which encourages people (and particularly, organisations – see Senge, 2006) to see errors as opportunities for learning, especially social learning, rather than as occasions for criticism. [96]
- *positivity creates a virtuous circle:* positive comments and feelings motivate people to participate more, or differently. In contrast, negative criticism prompts either withdrawal (avoidance) or a negative response (a form of reactance). It can set in motion vicious circles: withdrawal reduces participation, which dampens overall participation; negative responses prompt further negative responses.

- *eliciting positive emotions:* the benefits of positive emotions were described in an important paper, 'What good are positive emotions?" by Barbara Fredrickson (1998). She concluded, from a diverse range of studies, that positive emotions promote flexible problem solving and innovative solutions: they 'broaden and build' our repertories of thoughts and actions, and are better suited to dealing with major, complex problems than are negative emotions.
- *participatory approaches help people to achieve a more positive social identity,* both by enabling them to contribute to the task in hand, and through whatever recognition and praise their contributions bring. This tends to enhance self-esteem.

Ubuntu

The relationship between social interaction (of which participation is a particular form), social identity and self-esteem is reflected in the resonant South African term 'Ubuntu,' which Archbishop Desmond Tutu defines as meaning that 'a person is a person through other people.'

As noted previously, participatory methods can, if used appropriately, enable organisations to address some of the worst consequences of human behaviour by bringing out the best aspects of human nature.

1.2 Well-being and flourishing

Seligman (2011) defines well-being in terms of five 'PERMA' elements: Positive emotions, Engagement (or flow),[97] Relationships, Meaning and Achievement. CLTS, in common with many participatory approaches, involves at least four of them (the PERA four) - thereby increasing well-being in several respects. Relationships, in the form of social interactions which participatory methods facilitate and depend upon (in a positive feedback loop), contribute to the realisation of social potential[98] which can thereby contribute to well-being.

CLTS also involves, as do many participatory approaches, three other elements included in Huppert and So's definition of 'flourishing': self-determination (autonomy), self-esteem and resilience.[99] The goal of wealth, according to Seligman, is not just to produce more wealth, but to engender flourishing. Similarly, he suggests, this should be the goal of public policy.

1.2.1 Resilience, Ubuntu, social identity and Homo dictyous

Resilience is an element of flourishing (and of well-being). It refers to the ability of an individual, organisation, network or system to 'bounce back' from problems, shocks, disruptions and disasters, by responding appropriately to them, and by adapting to any contextual changes they produce. With individuals, the quantity and quality of their social connections are of particular importance in determining their resilience – Archbishop Desmond Tutu's definition of Ubuntu reflects the role of these connections in a person's identity, in which social identity (Tajfel, 2010) is crucial.[100]

A better understanding how social networks operate can not only improve *analyses* of the underlying causes of various environmental, health, social and economic problems; it can also help improve *interventions,* and reduce their costs. One of the most striking examples of this concerns immunization. Randomly immunizing a population to prevent the spread of infection typically requires that 80-100% of the population be immunized. However, the same level of protection can be achieved by immunizing roughly 30% of the people, if the selected 30% consists of the acquaintances of randomly selected individuals.[101]

The following weblink contains a video presentation explaining this:

http://www.ted.com/talks/nicholas_christakis_how_social_networks_predict_epidemics.html

The same principle has already been applied to behavioural influence; as is often the case, business has taken the lead. In the US, Proctor and Gamble have created a network of groups, revolving around (at one point) half a million mums, who together comprise a huge 'word of mouth marketing' arm – Vocalpoint, which recruits connectors (Gladwell, 2002): people with networks of friends and the ability to persuade. Because messages are passed between friends and colleagues, it can be inexpensive – the mums are unpaid.[102]

Christakis and Fowler (2011) propose an alternative to *'Homo Economicus'* (the concept in some economic theories of humans as rational and narrowly self-interested actors who have the ability to make judgments towards their subjectively defined ends). In Christakis and Fowler's alternative - Homo dictyous - connections play a central role:

Homo dictyous

"We propose an alternative. Homo dictyous (from the Latin homo for "human" and the Greek dicty for "net"), or "network man," is a vision of human nature that addresses the origins of altruism and punishment, and also of desires and repulsions. This perspective allows our motivations to depart from pure self-interest. Because we are connected to others, and because we have evolved to care about others, we take the well-being of others into account when we make choices about what to do. Moreover, by stressing our embeddedness, this perspective allows us to formally include in our understanding of people's desires a critical source: the desires of those around them. …This applies to everything from our health behaviours to our musical tastes to our voting practices. We want what others to whom we are connected want."

1.2.2 Autonomy, self-determination and agency

Sen, in 'Development as Freedom,' describes how women's 'agency' - a similar concept to self-determination, or autonomy (discussed in section 1.2 above) - contributes to women's well-being.

The participatory methods used in CLTS generally increase the autonomy of women and girls. The resulting outputs – safe, hygienic latrines – may improve their well-being in several respects. They can mean not having to go out before dawn or after dark, safety from the associated risks of violence and sexual abuse, time saved and rest gained, less constipation, and less embarrassment and difficulty in dealing with menstruation (Pearson and McPhedran 2008; Mahbub 2008; Mehta 2008).

Seligman, in 'Flourish,' (2011), discusses the relationship between flourishing and Sen's notion of well-being.[103]

2 Appendix: Sustainability and 4 types of effectiveness

The behaviour changes resulting from the use of participatory methods, and other behaviour-influence methods which involve participation, are likely to be more sustainable than those resulting from the use of extrinsic incentives, which often fade when the incentives stop (see section 1.3, p10, on intrinsic motivation). The reduction of subsidies for photovoltaic panels in the UK has led to a fall in their use, for instance, with adverse consequences both for GHG emissions and for the UK's fledgling solar energy industry. Most rural sanitation programmes which have used extrinsic incentives – hardware subsidies – have failed to meet their targets, resulting in partial sanitation and toilets which have not been used, or which have been used for other purposes (Chambers, 2009). They are usually not sustainable.

In contrast, CLTS tends to be more sustainable than such programmes, though this is not always the case. Where it is sustainable, it is due largely to interactions between its three main elements: *participatory methods* which reflect *principles of behaviour* and are used in a *social setting*. These methods are characterised by four types of effectiveness. They are operationally effective – they have been tried and tested in a range of settings. They are cost-effective – no special equipment or external subsidy is involved. They are time-effective – they can be applied quite quickly; time is not spent procuring supplies or chasing suppliers. They are locally effective – their participatory nature means they are culturally appropriate, and they fit the local context. These features help account for the rapid spread of CLTS.

These features have two further implications. They provide a rationale for complementing large-scale collective action with small-scale connected actions (see section 4.2.4, p24); and they underline the importance of the middle part of the adage 'think global, act local, link global' (see section 4.2.5, p24).

3 Appendix: Some features of behaviour influence methods

Behaviour-influence methods have various features; some were discussed in section 4.2 above; others are outlined below.

3.1 Behaviour-influence methods can address a wide spectrum of issues

Superficially, open defecation in Bangladeshi villages, and GHG emissions and low savings levels in the USA, are very different problems. However, all three result from interactions between various principles of behaviour. Correspondingly, behaviour-influence methods based on various combinations of these principles can effectively address them, as these examples illustrate.

Similarly, behaviour-influence methods are being used to address a wide spectrum of issues in which behavioural principles are involved (Banerjee and Duflo, 2012; Karlan and Appel, 2012). These include poverty, livelihoods, various environmental problems, rapid population growth, malaria, school attendance, HIV/AIDS, gang violence, and unsustainable consumption. They are increasingly being applied to overcome some of the most pressing challenges across a range of sectors around the world. They have also been used to deal with issues which at first sight do not seem amenable to a behaviour-influence approach – helping ethnic minority students in the US to do well in maths, for example, while enjoying studying (Rosenberg, 2012), or improving tax compliance (Thaler and Sunstein, 2009).

Behaviour-influence methods, used appropriately, are analogous to broad-spectrum antibiotics (each of which is effective against a broad range of different bacteria). When two or more are applied together, they are analogous to combination therapy (where two or more drugs used together reduce the likelihood of resistance occurring, and/or they increase the effectiveness of the treatment). The range of issues which they have been used to address, and the variety of contexts in which they have been applied, reflect the fundamental nature of the principles on which they are based.

3.2 They are being applied in all 3 sectors - state, private and 'third'

Organisations are the main means by which people are brought together for particular purposes in each of the three sectors - state, private and 'third'**.** The same principles of behaviour operate in all organisations, although they are packaged differently and used for different purposes by different types of organizations – the contexts in which they operate affect the influences they have.[104] They are also given different emphases, depending on the context and the issues to be addressed. Kotter and Cohen (2012) in their study of large scale change in the private sector, emphasized the centrality of the linked roles of visibility and the emotions, the same principles that a 'third sector' organisation used in the CLTS approach.

Kelman (2005) implemented large-scale change in the public sector by applying a number of principles of behaviour to a particular issue. He was asked by the Clinton administration to reform procurement across the US federal government's many agencies, which in the early 1990s were collectively spending $320 billion on discretionary goods and services. He identified several principles which were preventing change, and he exploited various principles so they acted as accelerators for change. These principles included familiarity, social norms, consistency, and overconfidence.

However, behaviour change in the public sector involves more than changing the way government organisations work internally: it is fundamental to their outputs. 'Influencing behaviour is central to public policy,' as the introduction to a report (entitled '*MINDSPACE')* for the UK government (Cabinet Office, 2010) acknowledged. In the past 10 or so years, the advances in understanding the influences on behaviour, outlined earlier in paper, have begun to inform the development and implementation of public policies in a few high-income countries (Shafir, 2012). The increasing scales - especially in the South - of the behavioural crises described in section 5 of this paper, driven by the spread of the three forms of unsustainable behaviours summarised in Appendix 5 below, means that these advances need to inform public policy around the world, not just in a handful of relatively wealthy countries, as a matter of urgency. This urgency is underlined by the speed of the spread of unsustainable behaviours – illustrated by the fact that lifestyle diseases are now the leading cause of death in many countries in the South (WHO website).

Organisations in all three sectors use behaviour-influence (BI) methods, which are already in widespread use in a wide range of settings, for many purposes.[105] They are tried and tested – they are effective; they are often cost-effective and time-effective; and many are low-tech. Their features mean that they can be more sustainable (see Appendix 2) than other approaches; especially where the latter involve external incentives. Sustainability is more likely when BI methods are carefully applied in a participatory manner, but while this increases its likelihood, it is not a guarantee.

Social networks also operate in all three sectors. In some cases they work as transmission mechanisms, increasing the impact of certain behaviour influence methods – for example, those used in lobbying. When used in lobbying, they may lead to, or amplify, 'the Matthew effect', coined by the sociologist Robert Merton to reflect the tendency of the rich to get disproportionately richer (Watts, 2004).

This process, which results in ‘positional inequality’ (Christakis and Fowler, 2011; see also Frank and Cook, 2010) describe this as inequality associated with the position a person has in social networks), has become more pronounced over the past three decades, a period during which commercial lobbying, and lobbying organisations, have grown greatly in number and power. [106]

3.3 Applications in different socio-cultural contexts, in both North and South

Behaviour-influence methods can be applied in almost every society, regardless of income level, culture or religion. CLTS began in a largely Muslim country in South Asia, as did the Grameen approach to microfinance. It is now being applied in countries in other South Asian countries, in South-east Asia, in Africa, and in Latin America, where the dominant culture is variously Muslim, Hindu, Buddhist, or Christian.

Participatory methods have been used mostly in the South, but have also been applied in the North (*PLA Notes 38, June 2000)*. Nearly all the methods developed by behavioural economists and environmental psychologists have been applied in the North, primarily in urban settings, but have recently begun to be applied in the South (Banerjee and Duflo, 2012; Karlan and Appel, 2012). However, when BI methods are used, it is necessary to be aware of the cultural context in which they are applied (see Appendix 4).

3.4 Matching methods to underlying causes

Where behaviour-influence methods are effective, it is often because they match the nature of the issues they are used to address in two respects.

Firstly, they are appropriate where a problem has significant behavioural components. A growing proportion of the challenges facing societies around the world are behavioural in nature. These include the current debt-fuelled financial crisis, various lifestyle diseases, and climate change, and so behaviour-focused approaches are becoming increasingly relevant (see section 5.3.1, p27).

Secondly, many unsustainable behaviours are initiated and/or maintained by social influences. Correspondingly, social influences are often the most effective elements of methods designed to address them. Smoking is an example; most people start smoking due to one or more principles of social influence (social identity, social norms in their peer group, social comparison, for example). Some of the most effective anti-smoking programmes similarly use these principles to help people stop smoking (Rosenberg, 2012).

3.5 Developing synergies between methods - if underlying principles are understood

Matching methods to underlying causes of problems can be achieved most effectively if the principles involved in the problems are analysed and understood, because these principles provide the lattice around which behaviour influence methods are built. They are analogous to the iron lattice which provides the framework for the concrete pillars of a high-rise building; it is the lattice-like structure which gives the framework its strength. This analogy is illustrated by Karlan and Appel (2012), in ‘More than Good Intentions,’ which describes how behavioural economics can be applied to a range of pro-poor interventions in the South; they focus on microfinance, agriculture, health and education.

Microfinance programmes, such as those pioneered by the Grameen Bank, exploit several principles of behaviour (described in a separate paper), particularly those involved in social behaviour - imitation, social learning, social norms, social comparison, and social identity – and also consistency and loss aversion. These interact in a social setting - group meetings - and thereby realise social potential: (see section 3.3.2, p17, above): the potential of people (and organisations) to achieve things, when they are linked in various ways, that they could not achieve (or that they could only inadequately achieve), when acting individually. The most publicised achievements of microfinance programmes are the micro-enterprises which flow from them, and the resulting improvements in the livelihoods of people living in poverty. There are at least two other benefits of the group setting in which microfinance projects take place.

One is that it facilitates client empowerment, which emerges from the fact that people come together regularly. ‘They talk about their work and home lives, they share knowledge, and they help one another deal with problems’ (Karlan and Appel, 2012). ‘They inspire one another.’ Another benefit of the group setting is that it provides an opportunity to integrate complementary interventions into lending programs – for example, business training, or a class on nutrition. Karlan and his colleagues (Gine et al, 2010) devised an ingenious way of linking microfinance with a health intervention, described in the box below.

Lifestyle diseases now kill more people in SE Asia than infectious diseases (Dans, A. et al (2011). These are essentially 'behavioural' diseases – they result from various behaviours (which also include inactivity). Smoking contributes more to morbidity and mortality rates than almost any other behaviour, and so Karlan and his colleagues used a commitment savings account to influence the behaviour of smokers. Following the success of the SEED account, they returned to the Philippines and produced a variant on it which they called CARES – Committed Action to Reduce and End Smoking. The only costs involved were the costs of the deposit collector's visits and the nicotine test.

Clients initially did two things: they made an initial deposit of about a dollar into the account, and they made a commitment not only to save every month, but to stop smoking by or before a 6-month target or lose all their savings. The initiative persuaded 4 times as many people to quit as the number who stopped smoking without it (the control group). This result was achieved through the interaction of 5 principles of behaviour: commitment, prompts, loss aversion, feedback (from the deposit collector) and reinforcement: the reward of receiving their savings at the end of the 6-month period. It was very cost-effective – the only costs involved were the costs of the deposit collector's visits and the nicotine test.

Karlan and his colleagues (Karlan and Appel, 2012) have used a variety of methods, singly or (more usually) in combination, with low-income people in poor countries to influence a number of their behaviours. Similar methods have been studied and used by Abhijit Banerjee and Esther Duflo, and are described in their book 'Poor Economics' (2012), which has been described as illustrating how 'their use offers a radically new approach to poverty.'

These two benefits reflect the two broad forms of influence that bring about the behaviour changes inherent in development (see 4.1): influences that occur by design, and those that occur by default (see page 39).

They also illustrate how synergies can emerge (both by default and by design) in policies and programmes which reflect principles of behaviour. Such synergies will be of increasing importance as the scale of behavioural crises continues to rise – illustrated by the rapidly growing obesity pandemic, now sometimes termed globesity. These crises are discussed in section 5 (pages 27-29).

The behaviour-influence methods developed by Mechai Viravaidya which helped bring about a dramatic reduction in Thailand's population growth rate from the 1970s (see footnotes 15 and 34) onwards provide two further, and different, examples of synergies. The first again involved microfinance. The NGO which Viravaidya established, the Population and Community Development Association (PDA), offered microcredits to women of childbearing age who did not get pregnant.[107] These microcredits have been used to improve their livelihoods – to help them buy and rear livestock, for example. They involved one of the principles of behaviour referred to in section 3.2: extrinsic motivation. Fun (see page 9, on intrinsic motivation) was also involved - PDA distributed T-shirts bearing the slogan 'Let the next pregnancy belong to the pig.'

The second example of synergic interactions involved an interaction between two different domains in which a number of Viravaidya's behaviour-influence methods proved effective.[108] The methods which he developed in the 1970s to help reduce Thailand's population growth focused on several behaviours; one of the most important of these was condom use. These methods contributed to an increase in condom use, which later helped to stem the HIV/AIDS epidemic. This increase on its own was not sufficient to effectively combat the epidemic; a multi-pronged anti-AIDS campaign, promoted by Viravaidya, was launched in the early 1990s. Nevertheless, the shifts in social norms which PDA's earlier condom-promotion initiatives helped produce, together with the varied experiences in behaviour-influence gained from these initiatives, contributed to an 'enabling environment' which facilitated the implementation of the campaign.

This second example illustrates the notion of social potential, described in section 3.3.2 (pp17-18). It involves a 3-way linkage between behaviour-influence methods, principles of behaviour, and social interactions. Together, these three elements help realise the potential of people and organisations to achieve things, when they are connected in various ways, that they could not achieve (or that they could only inadequately achieve), when acting individually.

The fundamental nature of the principles of behaviour is illustrated by the fact that methods which reflect them have applications in different contexts, and in different domains: savings, smoking, microcredit, population growth and sexual health in the above two cases. In the case of PDA, linkages between these principles, methods and domains produced benefits at several levels: benefits for individuals and families (in terms of their incomes, health and family size), for an organisation (in terms of improved use of resources, by exploiting synergies between methods) and for society (in terms of population growth and the ability to combat a global pandemic).

4 Appendix: Behaviour-influence and culture

When behaviour-influence methods are used, it is necessary to be aware of the cultural context in which they are applied. This awareness applies both in a general sense and in a specific sense. It is generally accepted that people and organizations working in cultures different from those in which they are based need to be sensitive to local customs, beliefs, attitudes and values, both secular and religious. More specifically, while the principles of behaviour described above are fundamental in that they appear to operate in almost all cultures, the ways in which they influence behaviour may vary, sometimes considerably.

It is important to be aware of these variations for several reasons. Firstly, they seem to apply in particular to several of the principles that influence social behaviours and social perceptions (of others). Secondly, many of the most effective ways influencing behaviour involve principles of social behaviour. A third reason is discussed below.

Most of the research in the principles of behaviour has been undertaken out in the North; similarly, almost all of the applications of these principles to public policy, and to social and environmental issues, have also been carried out in the North. For example, nearly all of the 55 contributors to the authoritative compendium ‘The Behavioural Foundations of Public Policy’ (Shafir, 2012), are based in North America. Nearly all of the methods used to promote pro-environmental behaviours which have been explicitly derived from research into the principles of behaviour have also been developed in the North (Gardner and Stern, 2002; Koger and Winter, 2010; Whitmarsh et al, 2010).

Smith (2012) points out that around 98% of the studies which have investigated the principles of social psychology have been undertaken in just five high-income countries, which happen to be those where individualism is particularly valued.

However, there is some evidence to suggest that several of the behaviour-influence methods derived from these principles may be even more effective in other countries – the third of the reasons why awareness of variations in the ways in which they influence behaviour is important for those organizations involved in sustainable development. This seems to be particularly true where behaviour-influence methods derived from the principles that influence social behaviours and social perceptions are applied in cultures which value the group more highly than the individual.

4.1 The use of behaviour-influence methods in more ‘collectivist’ cultures

These more ‘collectivist’ cultures exhibit a greater susceptibility to information about peers’ choices than more individualistic cultures (Cialdini, 2008). East Asian societies are generally more collectivist in nature than Anglo-Saxon cultures (Hofstede, 2010). Consequently, citizens of East Asian societies have a greater tendency to respond to *‘social proof’* information (Cialdini, 2008) – they are even more likely to rely on the actions and possessions of their peers to inform their decisions than citizens of Western cultures (Bond and Smith, 1996).

This difference appears to be partly related to the differing values placed on conformity in different cultures. In East Asian cultures, conformity is admired: ‘the nail that sticks out must be hammered down.’ In individualistic cultures, the converse tends to be true: non-conformity is seen as a good thing; traits relating to individuality are praised.

This difference was illustrated by a small experiment in which East Asian and American participants were asked to choose between an assortment of 5 pens to take home as a gift. The selection was always a mix of two colours, and because there were five pens in total, one colour was always more common than the other. The American participants favoured the less common minority colour (Kim and Markus, 1999), whereas. East Asian participants consistently preferred pens of the ‘common’ majority colour.

This latter tendency is exploited by marketers. Martin Lindstrom, a marketing expert who has advised corporations in several continents, has found that brands are more ‘socially contagious’ in Asia than anywhere else. Most Asian women who carry Luis Vuitton bags, he says, ‘don’t do so because they are enamoured of the brand’ (Lindstrom, 2012). Lindstrom quotes from a paper by Ravindran (2007). ‘The need to fit in is a strong driver. Asians are a collectivist society and group identity is important. So in Japan, if one office lady carries a Luis Vuitton bag, then it means that, to fit in, the rest would do the same.’

4.2 Applications of methods generated by the behavioural sciences for promoting sustainable behaviours

There have so far been relatively few significant efforts to apply the findings of behavioural science to promote sustainable behaviours in Asia, in contrast to their extensive application for this purpose in North America, Europe and Australia.[109] However, the potential to do so exists; it was illustrated by a two-part study by Han and Shavitt (1994). They analysed adverts in similar magazines in the US and South Korea, and found that the former were more likely to highlight how the product's benefits were conferred on individuals; the latter tended to appeal to the reader's sense of responsibility to one of several kinds of group.

To test whether such differences translated into differences in the extent to which adverts actually influenced behaviour, Han and Shavitt created two versions of adverts for a variety of products. For example, the individualistic version of an ad for a brand of chewing gum ran: 'Treat yourself to a breath-freshening experience. 'The South Korean version was: 'Share the breath-freshening experience.' Both types of ad were run in both cultures (in their respective languages). As predicted, the South Korean participants were more influenced by the collectivist rather than the individualistic ad, and for US participants the reverse was true. This differential effect was especially powerful for products that people tended to share with others.

People from collectivist and individualistic cultures also tend to differ in the relative weight they give to two central aspects of communication. When people communicate they firstly convey information to others, but they also influence the relationship they have with others, depending on how they communicate (Scollon and Scollon, 2000). Miyamoto and Schwarz (2006) suggest that individualist cultures place a greater emphasis on the informational function of communication, whereas collectivist cultures place a greater emphasis on the relational function. They tested this hypothesis in an experiment and in surveys involving telephone answering machines.

They found that Americans cut right to the heart of the information they were asked to leave on the answering machines (Goldstein et al, 2007), whereas their Japanese counterparts took longer to leave their messages; they seemed more concerned about how their message would affect their relationship with the recipient. In follow-up surveys, Americans reported hanging up around half the time when they reached an answering machine. Japanese hung up 85% of the time; they were more likely to cite relational reasons for doing so ('it is hard to sound personal on an answering machine'), whereas Americans were more likely to report informational reasons ('people sometimes don't check.'). Japanese respondents also said that they disliked answering machines because 'it is hard to speak because there are no responses.'

4.3 Conclusions – behaviour-influence and culture

4.3.1 The behavioural dimension to development, and behavioural influence

Development, as it is conventionally understood, has a geographical dimension – 'developing' countries are mostly in what is often called 'The South.' Development also has a behavioural dimension. This was briefly described in section 4.1, pages 20-21: as development proceeds, behaviours change at various levels. However, these changes take place in the context of existing patterns of behaviour, including (importantly) existing social norms, and construals[110] about these behaviours; these vary between cultures.

Miyamoto and Schwartz (2006) suggest that people from 'western' cultures should be sure to attend to the relationship they have with those with whom they are communicating in Asian cultures, as well as ensuring that the information they are conveying is received.

The issue of 'face' in Asian cultures illustrates their point; it involves social identity, both as perceived by others, and as perceived by oneself. In communication, or in any form of interaction, in Asian cultures it is important to ensure that other individuals and groups do not 'lose face' – that they do not feel that their social identity has been compromised, in the eyes of others or their own.

The above findings and observations appear to fit with the view that social information (for example, about peers' purchases) is even more important in collectivist cultures than it is in individualistic cultures; it suggests that the OPower approach of providing information about energy consumption by nearby households (see section 3.4.1) is likely to be even more effective in East Asia than it has been in the US.

Additional implications (Nahai, 2012) are that -

- the language used to convey information promoting sustainable behaviours in East Asia should refer to groups rather than individuals where possible: use 'we' or 'the team' rather than 'I' (English is in fact the only language in which 'I' is capitalised).

- images used in conveying such information should show groups rather than individuals. This point is also made by Weber (2012) in the context of framing (or re-framing) environmental issues; it applies in all culture, not just in more collectivist societies: *'..environmentally relevant decisions could be reframed in ways that might affect choices by changing the focus of such decisions from individuals to groups.'*

Note

The above discussion is a brief introduction to the importance of taking cultural factors into account before using behaviour-influence methods, and cannot do justice to this complex area. However, two initial qualifications concerning collectivistic cultures are needed.[111] Firstly, within collectivistic cultures people are not simply group-oriented. They make particularly sharp distinctions between in-groups and out-groups, and their receptiveness to influence will be strongly dependent on the characteristics of the group that is a potential source of influence (see Crompton and Kasser, 2009). Secondly, cultures can be differentiated along several dimensions. A second dimension describes the extent to which cultures are hierarchical. Differences in respect for hierarchy have implications for the design of behaviour-influence methods**.**

4.3.2 Participatory approaches and behaviour-influence: scale, scope and speed

Despite these qualifications, behaviour-influence methods derived from the principles that influence social behaviours and social perceptions remain among the most powerful of the many such methods that have been developed over the past few decades. They are likely to continue to be particularly effective in more collectivist cultures for many years.

Their use for the promotion of sustainable behaviours is of especial importance, in view of

- the *scales* on which commercial marketing methods (many of which promote unsustainable behaviours) are spreading
- their *scope* (these methods now penetrate almost every aspect of the lives of most urban people)
- and the *speeds* with which they are bringing about behaviour changes in many developing countries.

Three major categories of unsustainable behaviours are summarised in Appendix 5 (below).

Given these trends, the central role in participatory approaches of social influences, together with the correspondingly central role of the social settings in which participatory approaches are used, have an important implication for use of the behaviour-influence methods. The effectiveness of approaches involving these methods is likely to be enhanced if particular attention is paid during their planning and implementation

- both to the principles of social behaviour and to the behaviour-influence methods that involve these principles

- the various current and potential influences on the behaviours of individuals and organisations: a behaviour-influence analysis, outlined in appendix 8, will help understand these influences.

5 Appendix: Three forms of unsustainable behaviour

The 'designed' influences (see 'Default and design' below) that promote unsustainable behaviours - the behaviours that underlie unsustainable production and consumption - greatly outweigh those that promote sustainable behaviours. This gross imbalance is illustrated by a striking pair of statistics:

> **The average American adult is exposed to around 3,000 commercial messages a day.**
>
> **Only a fraction of 1% of every $1000 spent on marketing in the US is spent on public service announcements that promote sustainability issues.**[112]

Most unsustainable behaviours can be categorized in 3 groups: environmentally unsustainable behaviours, personally unsustainable behaviours, and financially unsustainable behaviours - summarized below.

	Unsustainable behaviours (USBs)	Outcomes
Environmental	Activities that result in or involve the - Extraction of renewable resources from the environment more rapidly than they can regenerate - Degradation of habitats and ecosystems more rapidly than they can be repaired, - Dumping of pollutants into the environment more rapidly than they can be removed.	Rising GHG levels + anthropogenic climate change; other environmental problems: for instance, air pollution (4D), the destruction of forests, the depletion of fisheries, the loss of habitats, species extinction;
Personal	Activities that are likely to result in premature death : smoking, overeating, 'over drinking,' unsafe sex, recreational drug use; lack of activity* / inadequate exercise **what is not done can be as important as what is done*	Obesity *and* 'lifestyle diseases': cardiovascular diseases, cancers, respiratory diseases, diabetes (see footnote 55)
Financial /Economic	Activities by individuals that are likely to result in the inability to maintain debt repayments and/or repay debts within agreed periods. Excessive purchases on credit, Taking out sub-prime loans Activities by businesses that a/ encourage financially USB by individuals b/ increase the risk that the business in question will collapse due to its own activities (rather than external factors) c/ increase systemic risk	*For individuals* a/ rapidly accumulating debt : b/ use of 'pay-day' loans, with extremely high interest rates c/ stress, depression, family problems *For businesses* a/ lack of long-term investment b/ bankruptcy *For the national (+ international) economy* - financial / economic crises

5.1 Default Influences and Designed Influences

The influences on our behaviour, most of which we are unaware of; exist on a continuum from default to design.

- *default* ('natural') influences emanate from partners, relatives, friends, colleagues, and from the place in which we happen to be

- *design:* those influences intended to make us act in a certain way (e.g. many influences at work; marketing; political messages).[113]

They exist on a continuum; the default-design distinction is blurred. Some of the most subtle methods that marketers use are those that influence prospective customers' friends; they exploit more 'natural' influences. 'One of the most effective forms of persuasion is advice from a trusted friend': a comment in a leading textbook on marketing.[114] This helps explain why Facebook has such a high market value, even though it itself does not sell products to its members. Vocalpoint, described on page 31 and in footnote 102, is an example of how 'world of mouth' or 'viral' marketing scales up, through social networks, the influences that friends have on each other's purchases.

Similarly, people sometimes try (by 'design') to make partners, relatives, friends, colleagues, behave (or think, or feel) in a certain way.

6 Appendix: Marketing as behavioural jujitsu - how commercial marketers exploit principles of behaviour

Commercial marketers ‘turn’ various principles (of behaviour) into ‘weapons of automatic influence’ (the term used by Robert Cialdini (2008), a leading authority on influence). They are ‘automatic’ because these tactics exploit ‘naturally present principles (of behaviour)’ and because we generally aren’t aware that these principles are indeed being exploited. Cialdini uses the analogy of jujitsu to explain how this ‘turning’ is done.

The general method has three important components:

> 1/ jujitsu experts ‘exploit the power inherent in such naturally present principles as gravity, leverage and momentum,’ to influence their opponents’ behaviour. This includes causing them to do things they don’t want to do, such as fall over. They exert power over the opponents. Similarly marketeers can exploit the power of the principles of behaviour in potential customers to comply with the profiteers’ requests (to buy their products).
>
> 2/ these profiteers exert little personal force themselves: most of the power that they exploit resides in their ‘targets’ – in their behavioural principles: just as in jujitsu, where experts can defeat physically stronger rivals by using the ‘naturally present principles’ in their rivals.
>
> 3/ This second feature gives the profiteers a third ‘enormous additional benefit’ – the ability to manipulate without the appearance of manipulation: the third element of behavioural jujitsu. This is important because people tend to resist if they think they are being coerced or manipulated to comply (see *reactance*). Most people who are subtly influenced by marketers aren’t aware that they are being influenced.

Therefore, people buy many of their purchases because they are being subtly influenced to do so: but they generally remain unaware of the various influences – many of which are social - involved in their purchase. When Cialdini asked people in his studies whether other people’s behaviour influenced their own, most insisted that it did not.

Two further benefits can sometimes occur through this ‘jujitsu’ approach. They are illustrated by Cialdini’s description of the ‘rejection then retreat’ marketing tactic, which exploits two fundamental principles of behaviour: *reciprocity* and *relativity* (perceptual contrast). It involves the seller first proposing an excessively high price, which is then rejected.

The seller ‘retreats’ and reduces the price, which seems substantially lower than the original price (perceptual contrast). Customers then often ‘reciprocate’: they respond to this apparently generous concession by agreeing to buy the item at the price the seller always had in mind.

When effectively used, this tactic results in the target victim feeling responsible for and satisfied with the arrangement, despite the fact that s/he may have been influenced to buy something they didn’t plan to buy, or to pay more for something than they should. This latter benefit, satisfaction, in turn generates a further benefit: people who are satisfied with a given arrangement are more likely to be willing to agree to further such arrangements: the *consistency* principle has been exploited, too.

7 Appendix: The last mile problem

The ‘Last Mile Problem’ is a significant problem given insufficient attention by many scientists, policymakers and practitioners working in the environment and development fields. The term was coined by the economist Sendhil Mullainathan. It describes the frequent disconnect between the resources they spend on developing solutions to problems, and the lack of attention given to ensuring that these solutions are applied in the right way in a timely manner (adoption) by the majority of the target population (diffusion).

‘Thus 999 miles of a 1000-mile journey are travelled, and then the journey is packed in,’ according to Dean Karlan and Jacob Appel (2012), authors of ‘From ‘More than Good Intentions:’

‘There is a strange disconnect between the way we (Americans in business) sell everyday products at home and the way we (Americans working with NGOs) sell development solutions abroad. Namely, we often don’t think we need to sell development solutions at all, but rather expect them to be adopted on their merits alone.’

'Maybe the reason we don't think much about the marketing of aid and development is that we don't want to feel like we are peddling something. It clashes with our idea of what aid should be. Most people ..in development programs ..do so for the right reasons. They want to help people in need. And many of the people in need really do want help. Since both parties' basic intentions are aligned, why should we have to resort to the dark arts of influencing behaviour – marketing - to get people on board?

The answer is that good intentions are not enough. There are many influences on a person's behaviour every day. Some of these may distract people from desired behaviours (repaying a microloan, attending a clinic); some may promote undesired behaviours (spending a loan on beer); while some may promote the desired behaviours. The failure to go the last mile may be due to several factors. It may be due to:

- lack of analysis of the influences on a person's behaviour: those that currently act as 'accelerators' for undesirable (or unsustainable) behaviours (e.g. loan defaults), or those that currently act as 'brakes' on the desired behaviours (e.g. loan repayments); those that could potentially act as 'brakes' on the undesired behaviours, or those that could potentially act as 'accelerators' for the desired behaviours, but which aren't currently operating (e.g. certain forms of social influence – not all forms of social influence act in this way).

- lack of awareness of the wide variety of 'behaviour-influence methods' that have been developed, some of which could act as 'brakes' on the undesired behaviours, while others could act as 'accelerators' for the desired behaviours. Sometimes the latter may suffice, so that the desired behaviours 'crowd out' the undesired behaviours which fade out, without the need for the latter to be actively discouraged.

- lack of training in the behavioural and related sciences, which can help organizations, or key individuals, firstly carry out 'behaviour-influence analysis' and then secondly implement various behaviour-influence methods that overcome the 'brakes' and which promote the accelerators identified by the analysis.

A behaviour-influence approach can both help overcome 'brakes' that impede change, and can also identify 'accelerators' that promote change – see 'Behaviour-influence analysis' in Appendix 8.1 below

8 Appendix: A behaviour-influence perspective on development, and the need for behaviour-influence analysis

Projects and policies which aim to address certain issues, or which adopt certain approaches, are preceded by relevant analyses: for example, economic (cost-benefit) analysis, environmental impact analysis, social analysis, and gender analysis. These analyses help improve the effectiveness and cost-effectiveness of projects and policies, and reduce the likelihood of unintended adverse consequences occurring.

Similarly, a behaviour-influence analysis undertaken carried out before behaviour-influence methods are used will help ensure that they are used effectively and cost-effectively, and with due respect to cultural, religious and local sensitivities. It will also help ensure that resources are not wasted and that unforeseen consequences will not occur. Some of these methods are deceptively powerful, and if used inappropriately, or without an adequate understanding of the principles on which they are based and the contexts in which they are to be applied, two kinds of problems can result:

- resources may be wasted
- unintended adverse consequences may occur.

A behaviour-influence analysis can also help understand why various policies and projects have either failed, or have not been very effective or cost-effective.

The need for this kind of analysis is underlined by the scales on which behavioural crises are developing around the world, and the speeds with which the unsustainable behaviours driving them are spreading. It is reflected in the introduction to the '*MINDSPACE' report* discussed in Appendix 3.2 (p33), which began with the observation that 'Influencing behaviour is central to public policy.' …' Therefore, civil servants need to better understand the *behavioural dimension* of their policies and actions. '

This paper has argued that influencing behaviour is central to the work of all three sectors: the private and the third sectors, as well as the public sector. Development in general involves increases in the number and variety of influences on behaviour of many kinds (Section 4.1, pages 20-21).

Commercial behaviour influence methods are of particular importance, given their aggregate power, and because many of them promote various unsustainable behaviours.

This 'behaviour-influence perspective' allows sustainable development to be framed in terms of promoting sustainable behaviours - see the final Postscript to this paper (pages 43-4).

Initiatives that aim to influence behaviour will be more effective, and more cost-effective, if they are preceded by behaviour-influence analyses. Such analyses will contribute to the 'better understanding of the behavioural dimension of policies and actions' which the MINDSPACE report suggested is needed.

Some questions which such behaviour-influence analyses might involve are listed below.

8.1 A behaviour-influence analysis involves asking questions such as:

What are the influences that might encourage the behaviours we are trying to promote?

What behaviour-influence methods might act as accelerators, to promote the desired behaviours?

What are the influences currently discouraging the behaviours we are trying to promote?

What behaviour-influence methods might overcome these brakes?

What are the influences currently promoting the behaviours we want to discourage?

What behaviour-influence methods might act as brakes on these influences?

What unintended adverse consequences might occur if these methods are used?

8.2 Vested interest groups, and their use of behaviour-influence methods

A feature of development over the past 40 or so years has been the rise of vested interest groups, and their increasing use of varied and often sophisticated behaviour-influence methods to influence government policies & programmes, sometimes thereby obtaining substantial subsidies[115], tax concessions or contracts.

A behaviour-influence analysis of their influence on government policies and projects would involve asking, for example:

Who is influencing whom to do what?

How - using which behaviour influence methods in what ways? Why - for what purpose(s)?

Who, where, gains what from such influencing?

Who, where, loses what from such influencing?

8.3 Postscript 1: Competition neglect, delusional optimism and behaviour-influence analysis

Competition neglect (Kahneman, 2012) is a term coined by two behavioural scientists to describe the tendency of entrepreneurs and managers in the private sector to ignore their competitors. This tendency is especially marked when a firm has developed a product which is, or has the potential to be, commercially successful. Businesspeople may then succumb to *delusional optimism* (Lovallo and Kahneman, 2003) - they get carried away by the attractive features of their own product and neglect not just the appealing features of competing products; they also overlook the factors that have made these other products commercially threaten their own. Not all of these factors are intrinsic to these other products: some may involve the effectiveness of the methods used to market them.

This is one of the reasons why, in this paper, commercial marketing methods have been mentioned at several points. Various features of participatory methods reflect certain fundamental principles of behaviour; these features help account for their effectiveness and their popularity. However, the enjoyment and community cohesion engendered during their use can sometimes lead to non-commercial forms of delusional optimism and competition neglect. It is easy to feel, while a participatory process is underway, that this is the answer. It may indeed be an important, if not the most important, part of the answer to the question of how to promote sustainable behaviours.

But another question is often neglected: what influences are promoting unsustainable behaviours? This second question is related to the *'morning after effect'* : the morning after a particular participatory process has ended, some answers to this second question begin to emerge – particularly in urban settings, where many more commercial behaviour-influence methods operate than in rural areas.

Sustainability is not just a function of a particular 'sustainable' approach or project. It also depends on contextual factors, and in particular on the extent to which competing, unsustainable behaviours are being promoted (McKenzie-Mohr, 2011), mostly by commercial behaviour-influence methods.

While certain fundamental principles of behaviour help account for the effectiveness and popularity of participatory methods, businesses also base their commercial behaviour-influence methods on an even larger number of these principles, and to a very much greater extent.[116] This similarly helps explain why their marketing campaigns are often very effective (and very popular, in those cases where they 'go viral'). [117]

It is therefore important for organizations promoting sustainable behaviours to not only focus on improving their own projects and policies, but also to be aware of and learn from the ways in which businesses influence the behaviours of their target groups and other relevant stakeholders (by lobbying politicians and regulators, for example).

The need for such 'competition analysis' is illustrated by exclusive breastfeeding[118] - a prime example of a sustainable behaviour. Only around 15% of the estimated 800,000 babies born in Thailand every year are exclusively breastfed for their first 6 months - the lowest rate in Asia, and one of the lowest in the world. One reason for this is the aggressive marketing of infant formula and other breast milk substitute products. There are constant streams of adverts and 'promotions' for infant formula through a wide range of media channels, and at grocery stores and pharmacies.

Infant formula is even promoted and distributed in hospital maternity clinics. Free infant formula samples are often given to mothers from the day they give birth, and sometimes earlier. [119]

Countering the impacts of commercial marketing through the provision of information – for example, codes informing businesses how they should market their products, or information telling mothers about the benefits of exclusive breastfeeding - is inadequate. It is inadequate, because the effectiveness of marketing lies in the variety and sophistication of the commercial behaviour-influence methods it involves, not just in the information it provides. Information alone is rarely effective in influencing behaviour. As Jerry Sternin observed during the development of the Positive Deviance approach – an approach which has participatory methods at its heart (see the paper on this website) – 'it is easier to act your way into a new way of thinking than it is to think your way into a new way of behaving.' (Pascale, Sternin and Sternin, 2010)

Marketers use a wide range of methods for influencing behaviour. Most of these methods involve much more than the mere provision of information; marketing is correspondingly much more than advertising. Commercial behaviour-influence methods have become increasingly sophisticated over the past few decades, as many are now based on the behavioural sciences. [120] Some of these methods are accordingly quite powerful; their effectiveness is derived partly from the fact that people are unaware that their behaviour is being influenced (see the quote by Ariely in section 5.2, p26).

Organizations promoting sustainable behaviours are likely to be more successful if they take the behaviour-influence methods used by their 'competitors' into account – particularly those used by businesses to promote sales of their products (since many of them promote unsustainable behaviours), but also those used by other organizations working towards the same ends as they are. However, many organizations promoting sustainable behaviours seem to have overlooked the behaviour-influence methods used by commercial marketers. Some also appear to pay insufficient attention to the importance of influencing behaviour – an oversight that has been termed 'The Last Mile Problem,' described in Appendix 7.

Some form of 'behaviour-influence analysis' will therefore help inform the approach they take – a sample set of questions is given above.

8.4 Postscript 2 : Sustainable development – reframed in terms of promoting sustainable behaviours and discouraging unsustainable behaviours

The term sustainable development has generated a great deal of debate, much of it unproductive; it is not operationally very useful. Partly for the above reasons, it seems helpful to frame sustainable development in terms of promoting sustainable behaviours and discouraging unsustainable behaviours. This framing has several merits. In particular, it

- provides a relatively seamless way of linking development issues, climate change, and environmental issues: all involve principles of behaviour, in various combinations, and can be addressed using combinations of behaviour-influence methods derived from these principles
- thereby allows certain synergies to be developed, or to emerge organically (see Appendix 3.5, p34): the 3 behavioural crises are usually addressed separately.
- allows conventional approaches to behavioural crises to be complemented by behaviour-influence methods that address the behavioural roots of these crises.

In addition, this framing
- is operationally useful: thousands of behaviour-influence methods now exist (Cialdini, 2008); they can influence specific behaviours with relative precision
- allows behaviours to be addressed at different levels, through the use of various transmission mechanisms which can scale up the effects of behaviour-influence methods (see section 4.2.3, p23)

and it opens up ways of
- both analysing and addressing governance and corruption issues (in terms of behaviour-influence methods and social networks)
- both analysing and addressing inequality (see the Matthew effect, Appendix 3.2, p33)

This framing of sustainable development complements other approaches; it is one approach among the many that are needed to address a complex and multi-level set of issues. [b]

Framing sustainable development in this[c] way means engaging with the main driver of unsustainable behaviours, commercial marketing. This allows the involvement of the private sector in sustainable development (see Blowfield and Murray, 2011; Esty and Winston, 2009; Senge et al, 2010; Welford and Starkey, 2000) to be viewed in terms of the many ways in which businesses use behaviour-influence methods.

This in turn opens up an enormous and largely untapped set of resources: the experiences and expertise in the field of behaviour-influence which businesses have developed over the past 50 or so years. Many of the behaviour-influence methods that businesses have developed can be modified to promote sustainable behaviours. These methods are more likely to be effective in the four respects outlined in Appendix 2 if they incorporate insights from the behavioural and related sciences, and if they are linked with the behaviour-influence methods these insights have led to - and also with the participatory and other methods that have been developed by third sector organisations, especially those working in the countries where over 85% of the world's people now live (four of their approaches have been described in this paper).

The more recent expertise which businesses (and, to a lesser extent, NGOs) have developed in scaling up the use of behaviour-influence methods through ICT and the social media, in expanding their scope, and in accelerating their speed of application, can also be applied to promote sustainable behaviours and discourage unsustainable behaviours on the scales, with the scope, and at the speeds which global behavioural crises require.

The insights and methods that have emerged from the two sets of revolutions outlined in this paper are applicable also to the development and implementation of public policies; if policymakers apply them appropriately, then they are more likely to operate synergically.

The fundamental nature of the principles involved in the behaviour-influence methods used in the private, public and third sectors means that a better understanding of these principles will increase the likelihood that the methods used in all three sectors to promote sustainable behaviours (and to discourage unsustainable behaviours) will support and complement each other.

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[b] *One of these approaches, 'identity campaigning,' is based on research suggesting that certain aspects of the human psyche create proclivities towards unsustainable behaviour. Crompton and Kasser (2009) focus on three specific aspects of human identity (values and life goals; in-groups and out- groups; fear and threats). They argue, firstly, that these proclivities are often reinforced, or enabled, by social norms and structures, by the government policies that shape these, and even sometimes by the actions of environmental organisations themselves. Secondly, they suggest that 'identity campaigning' should instead focus on those aspects of a person's identity that either lead them to demand more ambitious change on the part of organisations, or that underlie their motivation to engage in pro-environmental behaviours.*

[c] *in terms of promoting sustainable behaviors and discouraging unsustainable behaviors*.

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Notes

[1] '*behavioral sciences'* refers to various disciplines in psychology (cognitive and social psychology, for example), together with neuro-economics and behavioral economics; these mostly focus on individuals and small groups.

'related sciences' refers to those disciplines studying the contexts in which behavior takes places; these disciplines include environmental psychology, organisational psychology, organisational learning, social network science, and the study of communities.

[2] His late co-researcher Amos Tversky, would have shared the Nobel Prize with him, had he not died, aged 59, in 1996.

[3] Kahneman and Tversky's research has led (among other things) to a much better understanding of how we think, and how we make decisions and judgments. Kahneman and Tversky helped establish the new discipline of behavioural economics. The '3rd generation' of behavioural economists has begun to apply behavioural economics to development issues - see '*More than good intentions'* by Dean Karlan and Jacob Appel (2012), and *'Poor Economics'* by Abhijit Banerjee and Esther Duflo (2012).

[4] Behaviour takes places in various linked and overlapping contexts: families and other groups (friends, colleagues, leisure activity groups), organisations, social networks, institutions, communities, cultures and the natural and built environments. Human behaviour is both influenced by these contexts, and shapes them, in a co-evolutionary manner (Beinhocker, 2007; Christakis and Fowler 2011).

[5] The term 'psychology' is used initially to draw attention to an aspect of participatory methods which has received relatively little attention; however, in this context it is unsatisfactory, because it can mean different things to different people. For example, it is sometimes assumed to refer to 'mental illness;' it also tends to be seen as 'internal.' The term 'principles of behaviour' (or 'behavioural principles') is therefore preferable. Several kinds of principle which have some relevance to participatory methods are briefly discussed below.

[6] See *Mindless Eating by* Wansink (2006); and *Connected* by Christakis and Fowler, *(2011)*.

[7] Sen (2001), footnote 56 to chapter 11.

[8] Beinhocker (2007, chapter 16) describes 10 such norms which crop up regularly in studies of high-performing and adaptive companies. Two of these are strikingly to those which characterize participatory approaches. *Non-hierarchical behavior*: junior people are expected to challenge senior people; what matters is the quality of an idea, not the title of the person saying it. *Openness*: be curious, open to outside thinking, and willing to experiment.'

[9] Deci and Ryan (2008)

[10] Deci and Ryan (2008)

[11] Devine (2008).

[12] These examples illustrate how autonomy is not the same as the 'rugged, go-it-alone, rely-on-nobody individualism of the American cowboy' (Pink, 2011). People can be both autonomous and happily interdependent with others. Much autonomy is manifested by groups rather than by individuals.

[13] Michael Drinkwater, personal communication

[14] This issue is further discussed in section 3.3.2 in relation to *social potential*. It is also discussed in section 5.2, which describes one of the major insights produced by the participatory revolution: as noted here it has revealed how materially poor people can exercise greater influence than is often assumed.

[15] The idea of fun is central to the approach to family planning pioneered by Mechai Viravaidya, an approach which helped bring about a reduction in Thailand's population growth rate from over 3% a year in the 1970s to 0.6% in 2012. D'Agnes (2001) and Kotler and Lee (2009) describe the methods which Viravaidya developed. They included a number of 'edutainment' methods: for example, condom 'balloon-blowing' contests, a campaign featuring Captain Condom (looking like Superman) and a 'cops and rubbers' programme, which involved the police in condom distribution.

These behaviour-influence methods involved several principles of social behaviour – imitation and changing social norms, for example. They facilitated, and their use was facilitated by, the participation of the people who were the primary target group of Viravaidya's approach: those he wanted to encourage to use condoms. This 3-way interaction between principles, methods and social interaction helped to realise *social potential* – see section 3.3.2. The increased use of condoms which these methods helped bring about later played an important role in Thailand's campaign – see Appendix 3.5. The 'fun' element of his approach was later incorporated in his 'Cabbages and Condoms' restaurant in Bangkok; a branch recently opened in Bicester, UK. Details of both can be found through an internet search for *Cabbages and Condoms.*

[16] A variant on F. Scott Fitzgerald's comment: *'…the very rich.. are different from you and me. '* To which Ernest Hemingway relied: 'Yes, they have more money.'

[17] The principle of least effort is a broad notion that covers many fields. It suggests that people (and animals), as the term implies, tend to follow the path of least effort. It was described by Zipf (1949, reprinted in 2012) in the relation to communication and word use.

[18] The timing of rewards (and punishments) following behaviour has been extensively researched by behavioural scientists, particularly Ainslie (1975, 2010). Offer (2007) graphically describes the research.

[19] Time-discounting (formally, 'intertemporal choice') is not straightforward; research has revealed two important aspects of this psychological process, a process which is involved in various forms of decision-making. Firstly, when offered a choice between receiving a sum of money relatively soon and receiving it later, people prefer the reward that arrives sooner: the value of the later reward is 'discounted'. Secondly, the relationship between the timing of the reward and the value placed on it is not linear; moreover, in many cases the subjective valuation tends to fall rapidly after a short period, then declines more slowly over a longer period. This form of discounting is termed 'hyperbolic discounting.' It can lead to preference reversals: when ordering a restaurant meal, a diner trying to lose weight may decline a dessert when ordering before eating, when it is an hour away, but succumbs when he or she has finished the first course and the waiter returns with the dessert menu (Thaler and Sunstein (2009).

Ainslie (1975, 2010), Lee et al (1987), Loewenstein et al (2003) and Offer (2006) explain intertemporal choice and the implications of hyperbolic discounting in detail; Weber (2012) explains its importance in the context of environmental problems. Time discounting in general helps explain why the delayed impacts of open defaecation - or of GHG emissions - have relatively small (or no) influences on behavior.

Time-discounting is involved in all three forms of behavioral crisis; see pages 11 and 27

[20] Darby (2010) provides a number of examples of the importance of feedback, especially feedback that is 'available', for reducing energy consumption.

[21] This brief discussion refers to one kind of framing; there are various kinds. Wikipedia provides an overview. Framing in the context of campaigning on global challenges is discussed in 'Common Cause,' a report for 5 UK NGOs by Crompton (2010).

[22] Framing is also explained by Thaler and Sunstein (2009).

[23] *Cognitive dissonance* (Festinger,1957) is the term psychologists use to describe the uncomfortable feeling that certain inconsistencies involving cognition and behaviour can generate

[24] A subsequent, separate study, carried out in Ethiopia (Sharp, 2007), combining both quantitative and qualitative methods, used proportional piling. This also involved anchoring and adjustment. The study found that recall by villagers over 1, 2 and even 10 years was reasonably accurate for trends and orders of magnitude (which were two of the main aspects of changes in activities investigated in the Southern Africa drought study), even if the precise amounts of change were uncertain.

[25] Beinhocker (2007, chapter 6) describes several of these heuristics, and some cognitive biases; in chapter 16 he explains how some of them make it hard for individuals to adapt to changing circumstances, and how they can interact with certain social norms in low-performing organizations to reduce organisational adaptiveness. In contrast, as described in footnote 8 above, two of the norms which crop up regularly in studies of high-performing and adaptive companies are strikingly similar to those which characterize participatory approaches: n*on-hierarchical behavior,* and *openness*.

[26] Analysed by Alex de Waal in *Famine that Kills* (2005), who, among other things, drew attention to the differences in the perceptions of acute food shortages between those who experience these shortages and outsiders, who don't.

[27] A mental map consists of information we mentally store which guides us; it can help us find our way through situations (Koger and Winter, 2010).

[28] Michael Drinkwater, personal communication

[29] Paul Slovic, who coined the term *affect heuristic*, has carried out extensive research into the psychology of risk over the past four decades; the various psychological and social factors involved in the perception of and responses to risk have a broad range of impacts, and deserve to be more widely known by policymakers and practitioners. He describes his work in *The Perception of Risk*, (2000), in *The Feeling of Risk*, (2010) and in Shafir (2012). See also Kahneman (2012), Robinson (2013), Singer (2009), and Thaler and Sunstein (2009).

[30] By Gaissmaier, W. & Gigerenzer, G. (in press)

[31] Disasters Emergency Committee website

[32] For the distinction between the 'basic' and 'higher cognitive' emotions, see Ekman and Davidson (1995).

Frank (1991) explains how several emotions play central roles in helping to resolve an important class of problems, 'commitment problems:' those situations where people need to make credible promises.

[33] Cialdini (2008) describes how six 'universal principles of social influence' can be used in various combinations to provide the foundations for several thousand behaviour-influence methods. The principles are reciprocity, authority, consistency, social proof, liking and scarcity.

[34] An example of this kind of interaction is the approach to family planning pioneered by Mechai Viravaidya in Thailand, described in footnote 15, and in Appendix 3.5 on page 35.

[35] This is a multi-faceted revolution, touching every aspect of cognition and behaviour.

[36] Health psychology has a long and varied history; consequently many and varied methods have been developed to influence health behaviours. A comprehensive 'Behavior Change Technique Taxonomy' is currently being developed to facilitate their use: see Michie et al (2013).

The need for such a taxonomy is underlined by the fact that much of the global burden of disease is associated with behaviors that contribute to noncommunicable diseases (or lifestyle) diseases (NCDs). To date, interventions aimed at changing such behaviors have largely encouraged people to reflect on their behaviors (Marteau et al, 2012) These interventions have limited potential to change behaviors on the scale needed to halt and reverse the rise in NCDs, partly because they do not adequately address the behavioral roots of NCDs – just as most conventional approaches to climate change have so far proved to be relatively ineffective, because they similarly have not adequately addressed the varied behavioral roots of climate change (see section 5.3.2 of this paper). Marteau et al (2012) propose that interventions targeting the automatic bases of behaviors may be more effective, and could be implemented at the population level.

[37] Though these could equally well be described as new hybrid disciplines; both have emerged over the past 30-40 years.

[38] See 'Connected' (Christakis and Fowler, 2011); 'Cognitive Surplus,' by Shirky (2011); 'Engaging the Public with Climate Change,' by Whitmarsh et al (2010); 'Influence: Science and Practice,' by Cialdini (2008);

'The Psychology of Environmental Problems**,'** by Koger and Winter (2010); 'Positive Linking', by Ormerod (2013) and 'Behaviour and the Environment,' by Gardner and Stern (2002).

[39] 'Engaging the Public with Climate Change' edited by Whitmarsh, Lorenzoni and O'Neill (2010) is a wide-ranging survey of these methods.

[40] This study is one of many described in '*Yes!,*' (Goldstein, Martin and Cialdini, 2007). It describes how six 'universal principles of social influence' can be used in various combinations to provide the foundations for several thousand behaviour-influence methods (Cialdini, 2008). The principles are reciprocity, authority, consistency, social proof, liking and scarcity. These methods have been applied to a wide-range of problems with behavioural components in the 3 categories described above (personal, environmental, financial) and to community and personal issues. Tina Rosenberg (2012), in 'Join the Club,' describes how some of these principles and methods have been used to help cure tuberculosis, reduce smoking (and increase it – commercial marketers have pioneered many of these methods), and persuade teenagers to demand safe sex, among other things.

[41] Robert Cialdini, personal communication

[42] The principle of inertia is deceptively potent; a substantial body of research on this principle and its applications now exists. 'Two important lessons can be drawn from this research,' conclude Thaler and Sunstein (2009). 'Firstly, never underestimate the power of inertia. Secondly, that power can be harnessed…Setting default options, and other seemingly trivial menu-changing strategies, can have huge effects on outcomes, from increasing savings to improving health care to providing organs for life-saving transplant operations.' They describe various applications of defaults, as does Halpern (2009). He points out that 'defaults are already set in many areas of public policy, and the question is sometimes about whether they are the right defaults.'

[43] The principle of *loss aversion* is one of the most important principles of behaviour; its importance lies partly in the greater intensity of the motive of avoiding losses **compared with** the motive of achieving gains: the former is roughly twice as powerful as the latter. (see section 2.3 on the equally important principle of comparison**).** This 'asymmetric intensity…..shows up almost everywhere,' as Kahneman (2012) explains in 'Thinking, Fast and Slow.' Loss aversion is also described in Thaler and Sunstein (2009). Footnote 92 below provides further examples of its importance. Weber (2012) describes its importance in the context of perceptions of and responses to environmental problems, and in relation to how these problems are framed (framing is discussed on pages 12 and 43-4). Weber also explains the importance of comparison.

[44] The principle of inertia is described in Thaler and Sunstein (2009). The principle of time-discounting was briefly discussed in footnote 19, above.

[45] The 'Save More Tomorrow' programme is described in 'Nudge,' by Thaler and Sunstein (2009), and in 'Thinking Fast and Slow,' by Kahneman (2012).

[46] These were:

1. *Create a sense of urgency*.
2. *Build a guiding team*.
3. The guiding team *creates sensible, clear, simple, uplifting visions and sets of strategies*; the strategies need to be capable of being quickly adapted to changes in a rapidly changing world.
4. *Effectively* communicate *the vision and strategies, through many unclogged channels. Symbols* speak loudly. Repetition is the key – it builds on an important principle of behavior, familiarity.
5. *Remove barriers to action,* to enable people's autonomy (see above) to flourish; this puts the focus on the skills and experiences of the many. Promoting autonomy in this way is the psychologically more effective flip side to the notion of empowerment, which 'presumes that the organization has the power and benevolently ladles some of it into the waiting bowls of grateful employees' (Pink, 2009).
6. ***Accomplish various small, short-term wins****:* these are critical; they motivate people by demonstrating progress in positive ways; see Section 4.2.2 (p22) + Appendix 1 (on Positivity) , pp 30-31; see also Feedback, section 1.6, p11)
7. *Keep pushing for the adaptive organizational changes* that match the changing situation; consolidate early changes; don't let up.
8. *Create a new organizational culture* – of norms, values, attitudes, beliefs – that firstly allow the adaptive changes that have been made to stick, and which secondly create a context that encourages ongoing, adaptive change, rather than sudden disruptive change.

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[47] See also Weber (2012), who makes the important point that 'environmentally relevant decisions are seriously handicapped if people consider them in an analytic or calculation-based way..' Emotions (Slovic 2000, 2010) are of particular importance. Other principles of behaviour are, however, also involved, both as brakes that slow down or prevent change, and as potential accelerators which can help initiate, or speed up, change. Brakes include 'delusional optimism' (Lovallo and Kahneman, 2003); accelerators include various social influences, and organisational norms (Beinhocker, 2007; Kelman, 2005). .

[48] In the following discussion, the terms 'behaviour' and 'behaviours' also apply at these different levels. Some find it strange to refer to the behaviour of organizations, but this particular level of behaviour has been studied for many decades. Various academic journals, such as *'The Journal of Organizational Behavior'* reflect the depth and breadth of this area of research. A more familiar term is organizational learning (Senge 2006); learning is a fundamental form of behaviour.

[49] Default influences are also transmitted between relatives, friends, through social networks and via the places and situations people happen to be in.

[50] Hewstone and Martin (2012) use the terms 'incidental' and 'deliberate' to distinguish between these two forms of social influence.

[51] The first figure comes from Gore (2009). The 2nd figure comes from Starke (2010).

[52] Neuromarketing is an applied field using brain-scanning technology to devise and improve marketing techniques. Technologies such as functional Magnetic Resonance Imaging (fMRI), EEGs and steady state tomography are used to measure how brain activity changes in response to various marketing techniques. The results help marketers understand why consumers make the decisions they do, and which parts of the brain are involved. *'Brainfluence'* by Dooley (2011) describes "100 Ways to Persuade and Convince Consumers with Neuromarketing." Lindstrom, an internationally recognised marketing expert, critiques neuromarketing in *Buyology* (2009). He uses insights from neuroscience to show why public campaigns can be 'a complete waste of time,' and how some anti-smoking campaigns can inadvertently encourage people to smoke. In 'Brandwashed' (2012) he describes 'the psychological tricks and traps companies use' ..'the sophisticated and cunning ways we are all manipulated on a daily basis by the global brands that want to part us from our pay packets' (quoted from reviews of his book).

[53] Consumer psychology and consumer behaviour, have emerged as academic disciplines over the past few decades, contributing to the revolution in the behavioural and related sciences described in the introduction to this paper;, Danziger (2004) describes 14 'justifiers' that marketers can exploit to influence people to 'buy things they don't need' (the title of her book). The *Handbook of Consumer Psychology (*Haugtvedt et al, 2008) is a tome of over 1200 pages, describing classic perspectives on, and 'cutting-edge research' into, the many influences on the behaviors of consumers.

[54] An illustration of the ubiquity of commercial marketing is provided by the web reference for the study by Wolfgang Gaissmaier and Gerd Gigerenzer on the increase in traffic deaths in the US following the 9/11 attacks. Accessing the weblink http://phys.org/news/2012-09-traffic-deaths.html (in October 2012) gave a summary of the study's findings preceded by an advert entitled 'Thinking About Funerals? - Funeral Plans - Plan Today With The UK's Largest Independent Provider.' It is conceivable that this particular advert appeared in this summary because the study concerned deaths.

The summary was followed by an advert for a cosmetic product that revealed a 'Sheffield Mum's £10 trick for a wrinkle FREE face'. This also illustrates the sophistication of commercial marketing (in this case, e-marketing). Google 'knew' that this paper was written in Sheffield, England; correspondingly, marketers know that exploiting similarity can increase sales (though not in this case). This ad would have had even less chance of success if it had stated 'Shanghai Mum's 10 RMB trick for a wrinkle FREE face.'

[55] NCDs are the leading causes of death in all of the world's regions except Africa. They disproportionately affect low- and middle-income countries, where nearly 80% of NCD deaths occur. Cardiovascular diseases account for most NCD deaths (17.3 million people annually), followed by cancers (7.6 million), respiratory diseases (4.2 million), and diabetes (1.3 million). These four groups of diseases account for around 80% of all NCD deaths. (WHO website). They share four risk factors: tobacco use (especially in the South), unhealthy diets, the harmful use of alcohol, and low levels of physical activity. The number of people suffering from these diseases continues to rise, especially in low- and middle-income countries. In many countries, especially low- and middle-income countries facing multiple calls on limited resources, NCDs are not given the attention which their large scale and increasing prevalence deserve. The first Global Status Report on Noncommunicable Diseases was only published (by WHO) in 2010.

[56] These three groups of unsustainable behaviors are summarized in Appendix 5.

[57] the Positive Deviance approach is described in a separate paper, entitled '*The Positive Deviance Approach* to *malnutrition – a behaviour-influence analysis'* (on this website). It is also described in Pascale, Sternin and Sternin (2010) and in Heath and Heath (2011). The Grameen approach is briefly described on page 24 and 34 of this paper.

[58] These features, and those summarised in Appendix 3, are generalisations and do not apply to all behaviour-influence methods

[59] Heath and Heath (2011), use the term 'shrink the change' to describe an element of their three sets of recommendations for 'How to change things when change is hard' (the subtitle of their book, 'Switch.'). The three sets of recommendations involve exploiting 1/ people's their impulsive, emotional side and 2/ their rational, thinking side (both of which Kahneman (2012) refers to in the title of his book, 'Thinking Fast and Slow); thirdly, they recommend changes to the context in which people work (and live), as contextual factors play multiple roles in influencing behaviours. Thaler and Sunstein (2009) use the term 'choice architecture' to describe these factors; in their words, 'small and apparently insignificant details can have major impacts on people's behavior. A good rule of thumb is to assume that 'everything matters.' Wansink, in 'Mindless Eating' (2006), describes how making small changes to people's eating contexts, such as reducing the size of the dinner plate – a literal example of 'shrinking the change' – can have cumulative impacts over time which eventually produce significant changes in both behavior and in personal weight.

[60] See Gardner and Stern (2002), Heath and Heath (2011), Koger and Winter (2010), Kotler and Lee (2011), McKenzie-Mohr (2011), Senge et al (2010), Shirky (2009 and 2011), Whitmarsh et al (2010).

[61] Shiller both predicted (2005) and analysed (2008) the 2007-8 financial crisis. He described the central role of social contagion, spread through social networks, in the sub-prime boom which preceded the 2007-8 bust.

[62] See Beinhocker (2007), Duhigg (2013), Halpern (2009), Heath and Heath (2011), Kelman (2005), Kotter and Cohen (2012), Senge et al, (2010), Shirky (2009 and 2011).

[63] Senge et al revised Margaret Mead's original comment to read: 'Never doubt that a small group of thoughtful, concerned citizens can change the world. Indeed, it is the only thing that ever has. ….depending on their ability to build larger networks.' I have added ..*'or connect with'* (larger networks)

[64] Behaviour takes places in various linked and overlapping contexts: families and other groups (friends, colleagues, leisure activity groups), organisations, social networks, institutions, communities, cultures and the natural and built environments. Human behavior is both influenced by these contexts, and shapes them, in a co-evolutionary manner (Beinhocker, 2007; Christakis and Fowler 2011).

[65] Though in the case of CLTS this statement needs qualifying – see Appendix 2.

[66] The social influences involved in the Grameen approach are described by Karlan and Appel (2012); see also 'Banker to the poor: micro-lending and the battle against world poverty' (Yunus, 2003), in which Muhammad Yunus, initiator of the Grameen approach to microfinance, describes the story of the founding of the Grameen Bank in the 1970s and its subsequent development. Yunus has since developed the idea of *social business* as a 'new kind of capitalism that serves humanity's most pressing needs.' See Yunus (2009 and 2010).

[67] This was true until relatively recently in high income countries, but in the last decade policymakers in some of these countries have been influenced by certain behavioral science disciplines, particularly behavioral economics. The publication of 'Nudge' in 2008 was in some respects a turning point (Kahneman, 2012a). The Obama US administration appointed Cass Sunstein, one of the co-authors of Nudge, to a senior White House position. Richard Thaler has been an adviser to the 'behavioural insights team' (sometimes known as the 'Nudge unit' in the Cabinet Office of the UK government.

'The Behavioral Foundations of Public Policy,' (Shafir, 2012) is an authoritative compendium of some of the applications of the behavioral sciences to public policy; however, the fact that nearly all of its 55 contributors are based in the US illustrates the points made in section 5 about the need for a convergence between the two revolutions in learning and practice.

[68] This is a multi-faceted revolution, touching every aspect of cognition and behaviour.

[69] Though these could equally well be described as new hybrid disciplines; both have emerged over the past 30-40 years. See Kotler and Lee (2009 and 2011), and Senge (2006)

[70] See 'Connected,' by Christakis and Fowler (2011), and 'Cognitive Surplus,' by Shirky (2009); and Macrowikinomics by Tapscott and Williams (2011)

[71] 'Engaging the Public with Climate Change' edited by Whitmarsh, L, Lorenzoni, I and O'Neill, S (2010) is a wide-ranging survey of these methods. See also 'Influence: Science and Practice;' by Cialdini (2008); and **'**The Psychology of Environmental Problems**,'** by Koger and Winter (2010); and 'Behavior and the Environment,' by Gardner and Stern (2002). Shirky (2011) describes how the social media can be used to connect small-scale local actions, thereby scaling them up nationally and sometimes internationally.

[72] Tversky and Kahneman's seminal paper, *'Judgment under Uncertainty: Heuristics and Biases*,' was published in 1974; Robert Chambers was one of the first to draw attention to the biases afflicting rural development in the 1970s and 1980s; his pioneering book, *'Rural Development: Putting the Last First,*' was published in 1983.

[73] See the many *Participatory Learning and Action* issues over the past 25 years

[74] Abhijit Banerjee and Esther Duflo (co-authors of *'Poor Economics,*' 2011) , for example, and Dean Karlan (co-author of '*More than Good Intentions,' 2011*)

[75] The title of a book co-authored by one of the leading advocates of standard economics, Milton Friedman, who was awarded the 1976 Nobel Prize, just as Kahneman and Tversky were carrying out their seminal research. Kahneman (2012), later awarded the Nobel Prize in Friedman's discipline, economics, provides a cogent critique of Friedman's view: 'For behavioural economists, however, freedom has a cost, which is borne by individuals who make bad choices, and by a society that feels obligated to help them.'

To which might be added..' and by a society that, at some point, is often obliged to address the consequences of their choices – as with many aspects of the three forms of behavioural crisis.'

As Thaler and Sunstein (2009) conclude, 'everything matters;' and people's connections with each other (see Appendix 1), have implications for their 'freedom to choose.'

[76] This is the 'one main lesson' distilled from research carried out by Dan Ariely (2009), a leading behavioral economist, and other behavioural scientists, over recent decades. Cialdini (2008) also points out that consumers are unaware of the extent to which their purchases are influenced by marketing techniques.

[77] Thaler and Sunstein, 2009.

[78] Wansink, 2013

[79] Christakis and Fowler, 2011

[80] Christakis and Fowler, 2007

[81] A number of these operations come about as a result of influences of which we are unaware, if the term 'operations' is broadly defined – for example, as in many of the operations involved in purchasing, in consumption generally, and also in production. Darby (2010) discusses the often adverse environmental impacts of 'performing operations.. without thinking about them.'

[82] The Drama of the Commons (Ostrom et al, 2002)

[83] Governing the Commons: The Evolution of Institutions for Collective Action (1990)

[84] The 8 design principles are:

1. Clearly defined boundaries (effective exclusion of external un-entitled parties);
2. Rules regarding the appropriation and provision of common resources that are adapted to local conditions;
3. Collective-choice arrangements that allow most resource appropriators to participate in the decision-making process;
4. Effective monitoring by monitors who are part of or accountable to the appropriators;
5. A scale of graduated sanctions for resource appropriators who violate community rules;
6. Mechanisms of conflict resolution that are cheap and of easy access;
7. Self-determination of the community recognized by higher-level authorities; and
8. In the case of larger common-pool resources, organization in the form of multiple layers of nested enterprises, with small local common pool resources at the base level.

[85] Nobel Prize website, accessed 4 August 2013

[86] Loewenstein et al (2012) comment that .. 'Many of the most important problems currently facing the US as well as other developed nations stem from arguably irrational behaviors on the part of individuals.' This statement could be qualified in three respects:

- as well as other developed nations, *and also most developing nations* (for example, as with the obesity pandemic).
- irrational behaviors on the part of individuals, *and also organizations* (for example, the behaviors that led to the disappearance of Enron, WorldCom etc).
- the term 'irrational behaviors' covers *inaction* as well as action.

[87] Lifestyle diseases - more formally, noncommunicable diseases (NCDs) - now kill more people than infectious diseases kill in SE Asia (Dans et al (2011), & globally (WHO website); see footnotes 36 + 55.

[88] The 2007-8 financial crisis has been described largely in terms of its economic (and political and social) aspects. Influences on the behaviours of financial sector corporations and their staff, on the behaviours of consumers (especially sub-prime borrowers), and on the behaviours of regulators played significant roles in its gestation, but have been given less attention. However, some of these influences have been described by several economists and behavioral economists, notably Akerlof and Shiller (2010), Ariely (2009), Kahneman (2012), Shiller (2005 and 2008), and Thaler and Sunstein (2009) (the last of whom is in fact a noted legal scholar). Beinhocker (2007) and Cassidy (2010) describe a number of the psychological factors involved in the crisis; Cassidy proposes a return to 'reality-based economics,' based on a better understanding of these factors. Friedman (2009) describes how sub-prime loans were split up and diffused before the2007-8 financial crisis, effectively making the feedback from their adverse impacts '4D.'

[89] 'conventional attempts' is the shorthand term used in this paper to refer to 3 main groups of interventions: legal /regulatory; economic/market-based; alternative technology (e.g. renewable energy sources). They are referred to as 'frequently' failing with the 3 groups of behavioural crises. This does not mean that they have failed in every case; with smoking, the first two groups of interventions, coupled with shifting social norms and attitudes that they have helped bring about, have resulted in large reductions in smoking rates in the US since 1964, when the landmark Surgeon General's report entitled 'Smoking and Health' (which officially linked smoking with public health problems) was published. Recent reports highlight the importance of these two approaches in the areas of alcohol and obesity (Marteau et al, 2011).

However, three qualifications are needed when the reduction of smoking is used to illustrate the importance of these two approaches in other areas, particularly obesity and climate change (and other major environmental problems). They concern

- *speed:* it took many decades for laws and regulations concerning smoking to be enacted and effectively implemented;;
- *scale:* laws and regulations have had much less impact on smoking rates in most developing countries, where over 85% of the world's population live
- *scope:* many behaviours contribute to obesity and GHG emissions, in contrast to one main behaviour which causes lung cancer.

This is not to say that efforts should not continue to effectively implement these two approaches in the case of obesity (and NCDs in general) and climate change (and other major environmental problems). They are of great importance. The argument implicit in this paper is three-fold:

- these approaches could be complemented by connected small-scale actions, informed by the behavioural and related sciences.
- these approaches are more likely to be implemented on the scales, with the scope, and at the speeds which behavioural crises require, the more that wider society participates in the processes involved in developing and implementing them, and the more that these efforts are informed by the behavioural and related sciences
- multiple approaches, in varying combinations, are needed. The 'behaviour-influence' set of approaches (of which there are many) are emphasized in this paper because there seems to be relatively little awareness in the South of their variety and potential effectiveness (when implemented appropriately), or of the advances in the behavioural and related sciences which underlie many of them. There are also various misconceptions about them - for example, that they do not apply to

organisations, or that they cannot be scaled up, or that they amount to 'manipulation'. One answer to these points is that manipulation is already occurring on large scales, in the form of the many thousands of commercial behaviour-influence methods that are increasingly, though often subtly, shaping the behaviours of individuals and organisations in the South (illustrated by commercial marketing trends in many developing countries over the past 2-3 decades).

Frank (2012) provides a solid set of arguments for taxing harmful activities of various kinds; the progressive consumption tax he advocates has various merits. It seems particularly appropriate for addressing the 'Matthew effect,' especially in those developing countries where inequalities have been increasing at even greater speeds and on larger scales than in high-income countries over the past few decades. Frank (2012) and Harford (2011) both make a strong case for a carbon tax as the single most effective means of greatly reducing the risk of catastrophic climate change.

[90] These three sets of problems appear very different, but they have several features in common. Firstly, particular behaviours of large numbers of individuals and organizations play significant roles in the gestation of these crises. Secondly, the variety and number of influences on behavior have increased greatly since 1945, the period in which these crises have been gestating; these influences have accordingly contributed greatly to these crises. Thirdly, all three crises are resistant to conventional interventions to varying extents.

This third characteristic is due in large part to six other features. (1) The changes in the behaviours of individuals and organizations that conventional interventions require are not taking place on scales and at speeds commensurate with those that characterize the development of these crises. This can in turn be explained in terms of (2) influences on the behaviours of individuals and organisations, in particular (3) commercial marketing and (4) the influence of certain vested interest groups. Some of these groups also (5) contribute both to the development of these crises and (6) impede attempts to address them – the promotion of climate change skepticism (particularly a few years ago) by certain fossil fuel corporations, and the lobbying practices of tobacco corporations, are examples. For these reasons these crises can be described as 'behavioral crises.'

Finally, (7) these crises are international in nature: this makes collective action to address them especially difficult.

[91] A revised edition was published in 1971; Olson's book in also referred to in footnote 92

[92] One of the most important of these analyses involves the concept of loss aversion. '(It) is certainly the most significant contribution of psychology to behavioral economics,' wrote Kahneman (2012) in 'Thinking, Fast and Slow.' He provides a number of examples of its importance in Chapter 28 and elsewhere. Its importance for public policy is described in several chapters in Shafir (2012).

The relevance of loss aversion to the failure of the main approaches to climate change (section 5.3.2) is captured by Kahneman's comment at the end of Chapter 28. 'Those who stand to lose will fight harder than those who stand to gain.' In the case of climate change 'those who stand to lose' includes various vested interest groups, in particular fossil fuel companies - it is no accident that some of them have promoted climate change scepticism. Weber (2012) explains the important role that loss aversion plays in responses to environmental issues in general.

In the case of the pandemic of lifestyle diseases (NCDs), 'those who stand to lose' include certain food, beverage, alcohol and tobacco corporations. (See also footnote 106, on vested interest groups, lobbying, and perverse subsidies.)

The power of loss aversion to influence policy is greatly amplified by its interaction with one of the most important transmission mechanisms (for influencing behavior) described in section 4.2.3: organisations. This interaction links with Olson's important analysis (1974) of why collective action by the members of large groups (for example, international society) tends to be more difficult than collective action by the members of smaller groups (such as fossil fuel companies). It is difficult partly because the per capita gains and losses for those in nation states and in international society are much smaller than they are for those in corporations - hence the comment that was sometimes made following the 2007-8 financial crisis that 'gains have been privatized while losses have been socialized.' (see Friedman, 2009).

Collective action by large groups is also difficult because it tends to be harder (and more costly) to coordinate collective action in large groups than in small groups. However, the advent of ICT and the social media has greatly reduced these coordination costs, as Shirky (2009 + 2011) has pointed out.

It is for these reasons that questions concerning vested interest groups are included in the behaviour-influence analysis outlined in Appendix 8.

[93] The publication in April (2013) of 'Who Counts? The Power of Participatory Statistics,' (ed Holland, 2013) should help rectify this imbalance. Over the past two decades development practitioners have been supporting and facilitating the production and analysis of participatory statistics, from community-level planning right up to sector and national-level policy processes. This book shows how local people can generate their own numbers, and how the statistics that result are powerful both for themselves and for influencing policy.

[94] '*Rural development: Putting the last first*,' by Robert Chambers was published in 1973; '*Judgment under uncertainty: Heuristics and biases,*' by Amos Tversky and Daniel Kahneman, was published in 1974.

[95] The rationale for thinking about influences on behaviour is explained in Appendix 8.

[96] Harford (2012) summarises James Reason's distinction between 3 types of error: slips are unintended errors; violations are deliberate tricks; mistakes are things done on purpose but with unintended consequences.

[97] See section 1.3 above

[98] Social potential is discussed in section 3.3.2, pages 17-18 above.

[99] Additional elements in Huppert and So's definition of 'flourishing' – described by Seligman (2011) - are optimism, resilience and vitality.

[100] The above brief discussion of social identity refers to its positive aspects. Social identify, however, is multifaceted, and can have negative aspects; some of these are relatively obvious (as in gangs), some are much less obvious. Akerlof and Kranton (2000, 2005) have studied the role of identity in economics and in various contexts. An important recent set of approaches involves framing, values and human identity (Crompton and Kasser, 2009; Crompton, 2010) – see footnote *b* on page 44. See also Weber (2012) on reframing *'..environmentally relevant decisions ….by changing the focus of such decisions from individuals to groups.'* See page 38 in this paper.

[101] The social network science underling this is explained by Christakis and Fowler (2011) in 'Connected.'

[102] A Google search for 'P&G's Secret Weapon: Word-of-Mouth Marketing' will link to an article describing Vocalpoint, and its 'half million "highly engaged" moms who "advocate for products within their social networks." '

The same method, also called peer-to-peer marketing, has been used to sell products to children, teenagers young women. Schor (2004) describes how a marketing agency, GIA (the Girls Intelligence Agency), recruits girls to act as unpaid word-of-mouth marketers to host a 'Slumber-Party-in-a-Box' : a party in their bedrooms for their friends. The company's website (accessed on 26 August 2013) claims that it has around 40,000 'Secret Agents' aged 8-29 living all over the US. These 'agents' can reach perhaps 500 other girls, reaching up to 20 million girls nationwide, according to Schor. The only material payment the 'agents' receive is the sample they are given. The firm's methods exploit several basic principles of behaviour: group membership, scarcity (or exclusivity), status and fun. When they sign on, 'hosts' are congratulated for winning the 'distinguished honour' of becoming an 'official GIA Agent,' described as a 'VERY ELITE GROUP' with 'EXCLUSIVE ' access to products and events. They gain status by hosting fun parties at which the products of the firms they work for are distributed.

'One of the most troubling aspects of viral marketing is that it asks kids to use their friends for the purposes of gaining information or selling products,' Schor writes.

[103] Kahneman (2012) makes an important distinction between experienced well-being and life-satisfaction. Experienced well-being concerns how people feel as they live; life-satisfaction concerns how people feel about life when they think about it. When they think about life, the goals people set for themselves are important:

'(they) are so important to what they do and how they feel about it that an exclusive focus on experienced well-being is not tenable. ..On the other hand..a concept of ..well-being that ignores how people feel as they live and focuses only on how they feel when they think about life is also untenable. We must accept the complexities of a hybrid view, in which the well-being of both selves is considered. '

[104] See Beinhocker (2007), Duhigg (2013), Halpern (2009), Heath and Heath (2011), Kelman (2005), Kotter and Cohen (2012), Senge et al (2010), Shirky (2009 and 2011).

[105] Organisations in the first and third sectors have pioneered a wide range of methods, under various headings, to influence the behavior of their target groups (customers, politicians, 'beneficiaries,' participants..). The use of these methods by the state sector is less well-known, but in the last decade national and local government bodies in some high-income countries have begun to use them. The UK government's Cabinet Office (2008) published a report entitled 'MINDSPACE: influencing behavior through public policy.' This summarises insights from research in the behavioral sciences and provides described case studies of innovative evidence-based interventions in three areas: crime and anti-social behaviour; pro-social behaviour, and healthy and prosperous lifestyles. Halpern (2009) describes how behavior influence methods provide a 'powerful new set of tools for policymakers.' Jackson (2004), in a report funded by the UK Government, reviewed a large body of evidence on consumer behaviour and behaviour change to support the development of policies that will promote sustainable consumption.

[106] Myers and Kent (2001) describe how 'perverse subsidies', amounting to almost $2 trillion globally per annum by around 2000, have a range of adverse economic, social and environmental impacts. Perverse subsidies (those which increase the divergence between private and social costs/benefits) result from various influences on the behaviours of policymakers. The most salient of these are financial: between 1993 and mid 1996, the American oil and gas industry gave $10.3 million to political campaigns and received $4 billion in tax breaks, representing a benefit/cost ratio of about 400 to 1. However, other more subtle influences operate, particularly through the social networks linking policymakers and senior businesspeople. 'Lobbying' is an anodyne term that conceals both the variety and aggregate power of these influences, and also the cumulative and aggregate impacts of the subsidies they lead to. (UNEP's website provides more recent statistics on and analyses of perverse subsidies)

In the year before the Copenhagen climate change summit, vested interest groups opposing collective action on climate change 'flooded the US Capitol with paid lobbyists' (Gore, 2009). 'For every member of the House and Senate there were then more than 4 lobbyists working on climate issues' Those opposed to climate change legislation outnumbered supporters of the legislation by more than 8:1.

The enormous increase in the number of lobbyists in the US, and in the influence they wield, in the past 4 decades is graphically illustrated by a new book, described as the 'hot political book of the summer.' Mark Leibovich, in *This Town,* describes Washington as a city 'totally geared around the interests of lobbyists.' In 1974, just 3% of retiring members of Congress became lobbyists. This percentage has increased 15-fold since then: now almost half become lobbyists (42% of outgoing members of the House of Representatives, and 50% of outgoing Senators).

Partly for these reasons, Appendix 8 outlines some sample questions concerning vested interest groups that might be included in 'behaviour-influence analyses.' (See also footnote 92).

[107] D'Agnes, T (2001) in '*From condoms to cabbages: an authorized biography of Mechai Viravaidya,'* describes the founding and development of PDA. Aware of the need for a more comprehensive approach to fight poverty, PDA subsequently introduced its Community Based Integrated Rural Development (C-BIRD) programme. Activities focused on income generation, water-resource development, sanitation, education, promotion of gender equality and democracy, as well as on environmental conservation, in an integrated manner. Communities participated in project planning, provided labour, set up revolving funds - later called 'Village Development Banks' (VDB) by PDA - and took ownership of these through village committees.

PDA also pioneered the 'capital formation through tree-planting' approach. This links money from donors to VDBs for environmentally desirable behaviour (tree-planting), thereby increasing the VDB capital base and lending for business and for other purposes of members.

[108] Though it might it might be better described as a positive spill-over effect: the behaviour changes in condom use which these methods generated initially helped bring about a reduction in Thailand's population growth rate.' The same behaviour changes, and the associated changes in social norms concerning condom use, later spilled over to benefit a different, though related domain: sexual health. They played a role in the anti-AIDS campaign which Viravaidya promoted; see section 3.5, page 35.

[109] See Cialdini (2008), Gardner and Stern (2002), Thaler and Sunstein (2009), Whitmarsh et al (2010)

[110] *Construal refers* to 'the way in which people perceive, comprehend and interpret the social world.' (Aronson, Wilson and Akert, 2005)

[111] Peter Smith, personal communication.

[112] the first figure comes from Albert Gore's 'Our choice' (2009); the 2nd figure comes from the Worldwatch Institute's 2010 State of the World Report (Starke, 2010)

[113] Hewstone and Martin (2012) use the terms 'incidental' and 'deliberate' to distinguish between these two forms of social influence.

[114] Kotler et al, (2008). See descriptions of Vocalpoint and the GIA in footnote 102 on p 57

[115] Subsidies: see footnote 106 above; the question 'who loses..?' relates to *loss aversion*. See footnote 92

[116] commercial behavior-influence methods are ubiquitous; behavior-influence methods that promote sustainable behaviors, including participatory methods, are not.

[117] though consumers often deny that their behaviour is influenced – a denial which contributes to the effectiveness of the methods (See Appendix 6 on 'behavioral jujitsu.')

[118] exclusive breastfeeding is, as the term implies, breastfeeding which is unaccompanied by any other food supplements.

[119] The infant formula example is drawn from an article in the Bangkok Post by Bijaya Rajbhanadari, the UNICEF representative in Thailand. It was published on 17 June 2013, when this appendix was drafted.

[120] Neuromarketing, which involves the use of brain-scanning technology to determine how certain methods activate various parts of the brain, is one of the most recent marketing innovations – see Dooley (2011) and Lindstrom (2009). Data -mining is another – see Duhigg (2012) and Lindstrom (2012).

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