

“Policy making must start from the idea that there is no single way to identify a problem...”

CONNECTING THE DOTS

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Jake Chapman
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1 The age of uncertainty

The economy is a marvel of complexity. Yet no one designed it and no one runs it. There are, of course, CEOs, government officials, international organisations, investors, and others who attempt to manage their particular patch of it, but when one steps back and looks at the entirety of the \$36.5 trillion global economy it is quite clear no one is really in charge.

Eric D Beinhocker, *The Origin of Wealth*

We are a culture without the will to seriously examine our own problems. We eschew that which is complex, contradictory or confusing. As a culture, we seek simple solutions. We enjoy being provoked and titillated, but resist the rigorous, painstaking examination of issues that might, in the end, bring us to the point of recognizing our problems, which is the essential first step to solving any of them.

David Simon, creator of *The Wire*

Promises and pledges

In less than a year Britain will have a new government. Political parties will soon begin the process of developing their manifestos with promises and pledges to increase resources in some areas, cut spending in others but above all take action. The manifestos will outline what each party will do should they gain power. Many of the pledges will be simple – a sentence or two outlining a vague aspiration, the detail left for another time.

Except this time it will be different. The world around us is transforming at a dizzying pace. No longer will it be as simple as it was in 2005, 2001 or 1997. It is not that things have not got better, rather it is a case that things have become so complex, understanding success and failure has become increasingly difficult. A pledge may make headlines but it will not make sense to voters who experience uncertainty over their future, live with

the unpredictability of the global economy and drown in the complexity of policy issues. Against this background voters will not look to a single leader but will want credible leadership. They will not want a vision of the future, either, but will prefer a different, more nuanced way of seeing the world. And yet the worry among communities across the UK is whether this generation of politicians is up to the task. At least one author believes that we have left our future largely in the hands of people whose single greatest characteristic is that they are bewildered by the present.¹

Bleeding credibility

The pressure on politicians to act, even when their intervention is likely to make matters worse, remains a powerful force. But British politics is in danger of reducing complex issues to pointless simplicity. Tom Bentley, a former director of Demos, believes that real leadership means motivating people to solve problems for which there are no easy answers. The following principles for leadership could help societies adapt to new challenges:

- Acknowledge the limits of existing solutions
- Allow solutions to emerge from different sources
- Distribute power to people who can solve an issue most effectively
- Refuse to be diverted and learn from failure²

The more politicians refuse to acknowledge the complexity of an issue (like climate change, drugs or gang crime) and seek simplistic solutions, the more their credibility bleeds away – 87 per cent of the population believe politicians do not keep promises they make before elections, and 92 per cent say they never give ‘a straight answer’.³ In the face of this hostility politicians and policy makers must embrace complexity, uncertainty and unpredictability. This may sound counter-intuitive – especially when the public are crying out for answers – but as we will explain in the following chapters, to

err on the side of simplicity is a recipe for disaster. There is an accelerating uneasiness that issues we are dealing with today are spiralling out of control. Our response to intractable, so-called wicked issues (more of which later) demands a revolution in our approach – not just in our policy making tools but our way of thinking.

Politicians have learnt, more often than not through failure and/or indifference, that they can no longer lay claim to have the monopoly on solutions; indeed, in many cases there will not be a single solution, never mind a silver bullet or miracle cure to solving complex policy issues. An increasingly intelligent and more knowledgeable civil society is unlikely to believe politicians who lay claim to having solved a complex issue – respect is more likely to be earned through making an honest assessment of the issue in the first place. In complex systems the greatest we can hope for is an improved outcome, not a wholesale change. In the case of drug use in the UK, for instance, it is coming to terms with and accepting the fact that there has never been, is not now, and never will be a drug-free society, contrary to the UN's only recently shelved aim of achieving a 'drug free world'.⁴

Ciudad Juárez

Consider the case of illicit drugs in Mexico. The city of Ciudad Juárez stands on the Rio Grande across the border from El Paso, Texas. El Paso and Ciudad Juárez make up one of the largest binational metropolitan areas in the world with a combined population of 2.5 million people. Approximately 60,000 people flow across the Juárez–El Paso border every day making it a major port of entry and transportation for northern Mexico. Widespread poverty and violence rack the city, much of it generated by the conflict for control of drug routes across the border. In 2008 some 6,000 people were killed as a direct result of the conflict. In February 2009 the Mexican government said it would send an extra 5,000 troops and federal police to the city.⁵

Since 1968 governments have responded to drug gangs and trafficking with force. Over 40 years later this war of attrition, which has been copied across the world, has largely been a

failure, insofar as it has failed to end the production, trafficking and consumption of drugs. The opium and heroin market continues to expand on the production side. Demand is stable overall but increases have occurred in important areas. Overall, global cultivation remains just below 1998 levels.⁶

In March 2009 Eduardo Medina Mora, the Mexican Attorney-General, became the first senior official to admit that simply increasing the number of troops and police in response to the spike of drug-related violence would not end the drug-trafficking 'because that is unachievable'. Rather, he suggested that the deployment of extra troops and police was 'to take back from organised criminal groups the economic power and armament they've established in the past 20 years, to take away their capacity to undermine institutions and to contest the state's monopoly of force'.⁷

Eduardo Medina Mora's frank answer went largely unremarked in policy and media circles— and yet his statement reflects a realisation by senior politicians and law makers that Mexico's illicit drug market is a vastly complex system that cannot be solved by enforcement alone. In truth we probably all accept the fact that stopping drug trafficking is unachievable; however, the politics of the issue forces us from navigating a more intelligent approach to fighting organised crime – one that does not rest solely on the twin pillars of law enforcement and intelligence but rather seeks to influence social and economic factors, too.

This call was recently echoed from a UK perspective in the UK Drug Policy Commission's report *Re-focusing Drug-Related Law Enforcement to Address Harms*, which argues that enforcement efforts against drug dealing often fail to have a positive impact on improving lives in affected communities; drug markets are resilient and can quickly adapt in the face of arrests. The report recommends that enforcement should be redirected away from cracking down on dealers, and towards curtailing the most harmful effects of drug markets such as gun violence and sexual exploitation.⁸

Connecting the dots: wicked issues

This pamphlet is about a new approach to thinking. *Connecting the Dots* aims to lay the foundations for a new deliberative framework, one that is suited to and comfortable about dealing with complexity. Instead of focusing on specific policy initiatives, we want to focus our attention upstream – away from debating the merits of individual policies to how issues are framed.

Many of today's most important policy issues, such as the illicit drugs in Mexico, are unbounded in time, scope and resources. These policy issues have been labelled 'wicked issues' by academics and policy makers. The description of some issues as being wicked was coined by Rittel and Weber in their 1973 paper 'Dilemmas in a general theory of planning'.⁹ The abstract to their paper remains cogent:

The search for scientific bases for confronting problems of social policy is bound to fail, because of the nature of these problems. They are 'wicked' problems, whereas science has developed to deal with 'tame' problems. Policy problems cannot be definitively described. Moreover, in pluralistic society there is nothing like the undisputable public good; there is no objective definition of equity; policies that respond to social problems cannot be meaningfully correct or false; and it makes no sense to talk about optimal solutions to social problems unless severe qualifications are imposed first. Even worse, there are no 'solutions' in the sense of definitive and objective answers.

According to Rittel and Weber wicked issues have a loose set of characteristics:

- There is no definitive formulation of a wicked issue
- Wicked issues have no stopping rule
- Solutions to wicked issues are not true or false, but better or worse
- There is no immediate and no ultimate test of a solution to a wicked issue
- Every solution to a wicked issue is a 'one-shot operation'; because there is no opportunity to learn by trial and error, every attempt counts significantly
- Wicked issues do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-

described set of permissible operations that may be incorporated into the plan

- Every wicked issue is essentially unique
- Every wicked issue can be considered to be a symptom of another problem
- The existence of a discrepancy representing a wicked issue can be explained in numerous ways; the choice of explanation determines the nature of the issue's resolution

Several other authors have made similar distinctions between types of problems. For example Russell L Ackoff, a former professor of management science at the Wharton School, University of Pennsylvania, distinguished between 'difficulties' that could be managed and dealt with and 'messes', which he characterises as follows:

*Managers are not confronted with problems that are independent of each other, but with dynamic situations that consist of complex systems of changing problems that interact with each other. They are also known as messes.*¹⁰

Ronald A Heifetz, at the John F Kennedy School of Government, Harvard University, makes a different distinction in his work on leadership,¹¹ one that identifies conflicts of value as marking out a different order of issue. He describes 'technical' problems as those for which there already exists satisfactory processes or procedures. These are in contrast to 'adaptive' problems, which involve conflicts of value – either between groups of protagonists or between what a group wants and the situation it confronts. Meanwhile Donald Schön at MIT¹² referred to his two categories of problems as those that occupied the high ground – the domain of theoretical purity and soluble problems – and those in the swamp – where most of the interesting and important issues reside. In all these differentiations the authors emphasise that approaches that work for one category of problem will inevitably fail for the other category.

Over the years these distinctions have become more blurred and the term 'wicked' has become something of an umbrella category that captures the messy, swamp-like, adaptive problems

that are not amenable to conventional approaches and procedures. This is the sense in which ‘wicked’ is used in this pamphlet. We are also doing our best to avoid referring to wicked issues as wicked problems – though the literature does not make this distinction consistently. The reason for the distinction is that there is a strong association between ‘problems’ and ‘solutions’ – and as all the authors referred to above attest, the wicked, messy, end of the spectrum of issues defies ‘solutions’. Adequate procedures do exist for the tame, difficult and technical type of problems. However, because the same procedures and approaches fail with wicked issues, it is these that remain as demanding attention. Below, we outline the four main characteristics of wicked issues.

Wicked issues are not amenable to conventional policy-making processes

The first characteristic that distinguishes a wicked issue is that it is not amenable to the conventional rational policy-making processes that work in other domains. This characteristic can be deduced if there have been repeated attempts at addressing the issue without any significant progress. This is the case with deprived neighbourhoods. Governments of all complexions have sought to reduce the level of poverty and deprivation in the worst estates for more than 30 years – yet the same estates have remained the most deprived and a source of social exclusion for those who live there. The successive failure cannot be attributed to either insufficient resources nor to lack of intention or political will. At different times different aspects of deprivation have been intensively addressed – poor housing, unemployment, local facilities, drug use and crime, health care and so on. Although each intervention made some difference, the deprived area remained a deprived area.

Wicked issues involve profound disagreement

The second characteristic of wicked issues is a level of profound disagreement. In Heifetz’s classification the disagreement arises

as a result of conflicts of values. In most cases, however, the disagreements arise as a result of the use of different perspectives, paradigms or frames within which the issue is viewed and from which explanations derived. Disagreements are the bread and butter of political discourse, but the disagreements referenced here are of a different nature. The disagreements are between agencies or stakeholders or groups of people who are active within the domain of the issue itself. Furthermore, these disagreements involve divergent views not simply on what the 'solutions' are, but also about what the problems themselves are.

An example of this is tackling the issue of youth nuisance. One group regards the problem as being rooted in the anti-social behaviour of a group of youths who need to be taught a hard lesson that such behaviour will not be tolerated. Referred to as the enforcers, this group favours the use of ASBOs followed up by sending those in breach to prison. Another group regards the problem as an inevitable result of the failure to provide modern youth with a spectrum of engaging activities. Known as the distracters, this group argues for the provision of more and better youth facilities that should remain open for longer hours. A third group regards the problem as rooted in inadequate parenting, in particular the lack of good male role models in the communities involved. This group promotes strategies that support parents to regain control of their children, including courses and facilities for use by parents of children at risk.

A fourth group regards youth nuisance as a plea for help by children who are receiving inadequate care in poor and often dysfunctional families. This group promotes schemes for addressing the worst cases of poverty, and for assisting single parents and the children of parents with addiction or mental health problems. This is not an exhaustive list of the positions taken by different agencies involved in addressing the issues of youth nuisance. And, as can be gauged from the descriptions of the different positions, each group regards those advocating different approaches as adding to the problem. One group's solution is another group's disaster. What is worse is that these groups spend most of their time and energy trying to win the

arguments rather than addressing the needs of the families and youths involved in the issue. So, unless a way of accommodating these differences is found, all policies will fail because they will simply become ammunition for one group or another within the system.

Wicked issues are unbounded

The third characteristic of wicked issues is that they are unbounded. What we mean by this is that as one engages with an issue, the scope of the inquiry seems to extend ever further – without any obvious end.

Foresight's 'Obesity Map' draws the connections between dozens of different causes, which includes transport policy, health education, town planning, food advertising, social deprivation, media regulation, mental health, parenting and individual choice. What might initially seem a tightly 'bounded' issue (for example, 'reduce child obesity by X per cent) is quickly seen to spill outwards into a mess of cross-cutting, interdependent issues. As pointed out by Ackoff in his description of a mess quoted above, issues and problems become intertwined. As a result of these multi-faceted and interconnected problems, a great variety of agencies will have a stake in addressing each wicked issue. As the 'scope' of the issue sprawls outwards, the involvement of an ever wider range of institutions is seen to be necessary to address the wicked issue. No one sector can 'own' a wicked issue, and thus the unbounded scope of wicked issues presents a severe challenge of coordination for government departments, local authorities, public service providers, third sector agencies and individual behaviour. As a more diverse group of stakeholders is brought together in a bid to tackle the issue in question, profound disagreement about what the issue is, as well as about its root causes, is almost inevitable.

Wicked issues are complex

The final characteristic that seems to us important in distinguishing wicked issues is *complexity*. The particular aspect of

complexity that is significant here is the *impossibility* of being able to predict the behaviour of complex human systems. Because of complexity, the tasks of managing wicked issues become in large part the challenge of managing and responding to unpredictability.

There are three core reasons for denying the possibility of being able to know and predict complex system behaviour. The first reason is related to complex but deterministic systems that can be represented by scientific and engineering equations. For a significant number of such systems the behaviour is infinitely sensitive to the starting conditions. Such systems are known as chaotic systems. The earth's climate is an example of such a system and accounts for why long term weather forecasting is not just difficult, but impossible. Even where a complex system is not chaotic, the existence of many different feedback loops, some reinforcing change, some counteracting change, makes the overall behaviour impossible to predict.

The second reason is that in the domain of social problems there is no agreement about what causes what; different agents and agencies have different ways of accounting for the system within which they operate; people have different ways of constructing meaning from their experience. These differences cannot be resolved by experts or by data – because each person's perspective or paradigm dictates what is and is not data, what is and is not valid evidence.¹³

The third reason is that all human activity systems involve human beings – autonomous agents – interacting in inherently unpredictable ways. The unpredictability arises because the same message sent to different people will be interpreted differently, and these differences in meaning will lead to different responses. Not only this, but regardless of the message received or sent, human beings always have choice, and the exercise of that choice cannot be predicted. So although we are now able to send messages to each other with much lower cost, in much less time, these messages do not yield greater uniformity.

When an issue is manifesting a high level of complexity it is necessary to appreciate that a high level of ambiguity and unpredictability is an irreducible component of the issue. An

obvious example of these characteristics is the financial crisis brought about through the use of complex financial derivatives, linked to the US sub-prime mortgage market and used by investment banks to earn enormous profits. The debate about exactly what was the source of the crash continues, but all commentators and analysts are agreed that a key component was the sheer complexity of the products themselves and the various ways in which they were repackaged and bought and sold through financial markets. The unpredictability of the crisis and interventions was made obvious by the surprise – and catastrophic consequences – associated with the effects of allowing Lehman Brothers to collapse.

Wicked issues: summary

In summary, wicked issues are:

- The site of persistent failures; repeated attempts at ‘solving’ the problem have had little effect
- The source of profound disagreement – over what the problems are, as well as over the improvements to be made
- Unbounded in scope; the issues sprawl outwards and interconnect with many other problems
- Resistant to completion; wicked issues cannot be ‘solved’, once and for all
- Complex, in the technical sense of being *in principle* unpredictable

Three key challenges in modern policy making

Wicked issues present major challenges to politicians, policy makers and practitioners. First, wicked issues require thinking about the big picture so that multiple interconnections between issues can be identified. For example, to understand gang crime in one locality we have to look at educational and housing issues (and thus patterns of social exclusions), demographic shifts, links with criminal gangs in other boroughs (where are the key rivalries, conflicts and alliances?) and the unintended consequences of policing and social work (do policing methods

alienate the gang-impacted community for example?). One reason for focusing on the big picture is to manage the complexity and unpredictability of the issue.

To use a popular analogy, problem-managing becomes less like throwing a rock, and more like releasing a live bird; that is, a process of managing and responding to unpredictability rather than mechanistically determining outputs.¹⁴ For example, recent efforts to address gang crime have had numerous unintended and unexpected consequences. In gang-impacted areas, the provision of recreational and educational facilities was intended to encourage young people away from criminal gangs. However, in some neighbourhoods this has actually strengthened gangs, as the facilities have been incorporated within the gangs' territories, with gang affiliation becoming a condition of facility use.

The second challenge is the need to adopt a pluralist approach to a policy area, because wicked issues are the site of profound disagreement. This is easy to state but more difficult to implement, especially when balancing political demands to prioritise a particular perspective. However, one of the strong characteristics of wicked issues is that there are significantly divergent perspectives operating. Consider how groups within large institutions such as the NHS often have very different perspectives on 'what is wrong' internally; frontline workers blame managers, individual departments hold each other responsible, and managers blame inter-departmental infighting, centrally imposed targets and a lack of resources. There will also often be divergent perspectives on what the institution's aims and purposes are, and no agreement on the specific issue. Unless these are acknowledged and integrated into the process, interventions are unlikely to meet their objectives. This is extremely difficult in a political environment where ministers *require* civil servants to prioritise the minister's perspective. However, a pluralist approach is crucial in developing genuine improvements for wicked issues.

This pamphlet

Connecting the Dots explores three case studies. The following chapters focus on heroin use in the UK, climate security and gang crime in London. The aim of each of the case studies is to examine how each is framed and where disagreements lie. The result is a mashup of facts and figures, ideas and approaches; most importantly, there are no clear or simple answers. Given the difficulties we have outlined in the first chapter, and the importance of credibility when managing complex issues, our modest aim is instead to highlight profound disagreements, explore ambiguities and make the case for thinking about the big picture.

The first case study focuses on heroin use in the UK, and attempts to uncover what the problem is; this challenge is characteristic of wicked issues. In the past three decades drugs policies have failed to have a significant impact— as witnessed by the rapid growth in the number of heroin users, the decreasing street price and increased levels of harm caused. There are also fundamentally different conceptualisations of what is occurring and over the root causes of why the problems of heroin addiction grew so much and so fast.

The second case study explores how the climate change debate has shifted from being a concern first of the green movement, then of economists and latterly of security officials. This latter debate posits climate change principally in terms of security implications. ‘Security’ can be understood not only in the narrow ‘traditional’ sense of national security and the avoidance of military conflict, but also in the broader sense of ‘human security’, thus encompassing more general threats to the basic needs of human life (shelter, water and food).¹⁵ Climate security presents a ‘perfect storm’ of complexity; if either severe climate change occurs, *or* the large-scale changes to avoid this are implemented, we face a radically different, largely unpredictable future, a new geopolitical context for security threats.

The third case study investigates the issue of gang crime in London, and illustrates how what might initially be thought to be a relatively ‘tame’ problem is quickly seen to be dauntingly wicked, to the point where we are not sure what the problems are any more, nor of the solutions. Gang membership, and the

influence and impact of gangs over the wider communities, has grown markedly since the 1990s. The rise of criminal gangs in inner city areas is often attributed to the increase in the heroin and crack cocaine markets in the early 1990s, and also the shifting demographics of social housing with many inner city housing estates becoming pockets of severe social deprivation from the 1980s onwards.¹⁶ Between 1981 and 2006 the proportion of working age social tenants in full-time employment fell from 67 per cent to 34 per cent.¹⁷ The final chapter explores an approach to thinking about the complexity of wicked issues and offers a potential way forward using scenario planning and systems thinking.

2 Addicted to heroin

The number of heroin users and their impact in the UK are startling. There are estimated to be around 250,000–300,000 heroin addicts in the UK,¹⁸ and there is a large overlap between heroin addiction and crack addiction among the UK's estimated 195,000 crack addicts.¹⁹ We will not distinguish between heroin and crack users because the groups overlap and the addiction, acquisitive crime and treatment issues are broadly similar:

It's impossible these days to divorce heroin from crack use. The people with the worst drug problems tend to be people whose background is one of poverty, social exclusion; probably at least 75–80 per cent of people who come forward for treatment are likely to have complex needs.

Interview, UK drugs charity worker

In 2003/04 the economic and social costs associated with Class A drug use in England and Wales were about £15 billion, 90 per cent of which were the result of drug-related crimes. Problem heroin use accounted for 99 per cent of the total costs,²⁰ and 12 per cent of all those arrested are heroin or crack addicts (compared with less than 1 per cent of the population), with 30 per cent reporting committing at least one (usually acquisitive) crime a day.²¹ A relatively small number of people are causing huge amounts of social harms, to themselves and others. The heroin and crack market has unparalleled profit margins, and is hugely lucrative for upstream dealers and traffickers; the UK heroin and crack markets are both estimated to be worth over £1 billion each.²²

The profits to be made mean that many enforcement efforts fail to drive dealers from the market. While the current heroin seizure rate is estimated to be around 12 per cent,²³ in 2003 the Prime Minister's Strategy Unit argued that seizure rates of over

60 per cent would be needed to put upstream traffickers out of business. Despite increased global and national seizure rates of heroin, the street price of heroin has almost halved since the mid-1990s.²⁴

In this case study we use the example of heroin misuse in the UK to illustrate different characteristics of ‘wickedness’, focusing particularly on pluralism and the profound disagreements over what the problem is. We then show how systems-thinking approaches could be of value in tackling such a wicked issue.

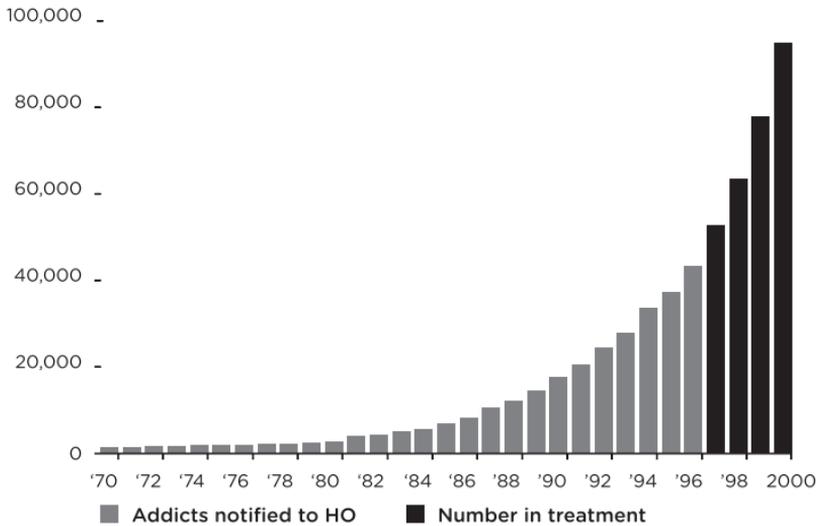
Heroin use: a wicked issue

The first criteria for a wicked issue is that there should be some evidence that the issue cannot be addressed by the normal approaches – of evidence that these have resulted in repeated failure over a period of time. This evidence is not hard to assemble. The War on Drugs was launched in the USA in 1969 and has been supported and enacted by all US presidents up to 2009, yet the numbers of addicts, the volume of drugs trade and impact of organised crime associated with drugs has increased – most dramatically in Mexico. There was an exponential growth in the number of ‘dependent opiate and cocaine users known to treatment services’ in the UK from 1970 (see Figure 1), and although there is some evidence that the rate of heroin addiction has recently stabilised, it remains at a high level compared with other countries in Western Europe.²⁵

At the time of writing the Centre for Policy Studies, a think tank based in London, had just published a report on UK drugs policy. *The Phoney War on Drugs*²⁶ argued that post-1997 drugs policies have not worked and have failed to curb drug use. A similar critique was made by *The Economist* recently.²⁷ In 2004 the decriminalisation drugs lobby group Transform argued:

*Prohibition is a globalised legal system that mandates criminal sanctions in an attempt to eliminate the production, supply and use of certain drugs from society. This policy has failed on its own terms, globally and in the UK, with drug use and misuse rising dramatically, and drugs cheaper and more available than ever before.*²⁸

Figure 1 **Dependent opiate and cocaine users known to treatment services in the UK, 1970–2000**



- Crack use began in the late 1980s but has only begun to rise substantially in the last few years
- Numbers in treatment are used as a proxy for use – other indicators show a similar pattern

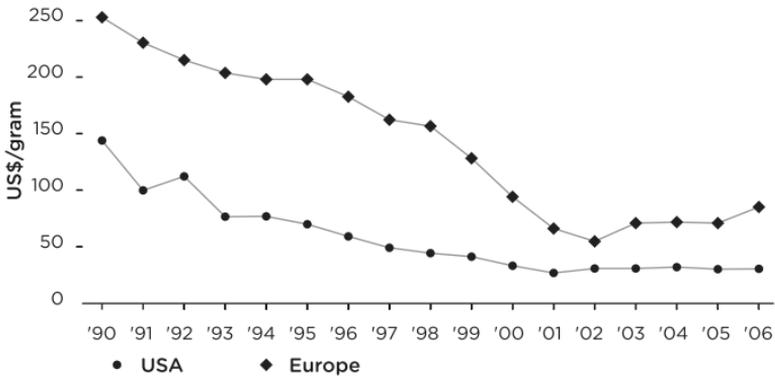
Source: Home Office Addicts Index and Regional Drugs Misuse Treatment Databases

As example of these failures, consider that the wholesale price of heroin per gram has roughly halved between 1990 and 2007 in Europe and the USA (Figure 2).

This decline in price has been despite increases in seizures of opiates,²⁹ as shown in Figure 3.

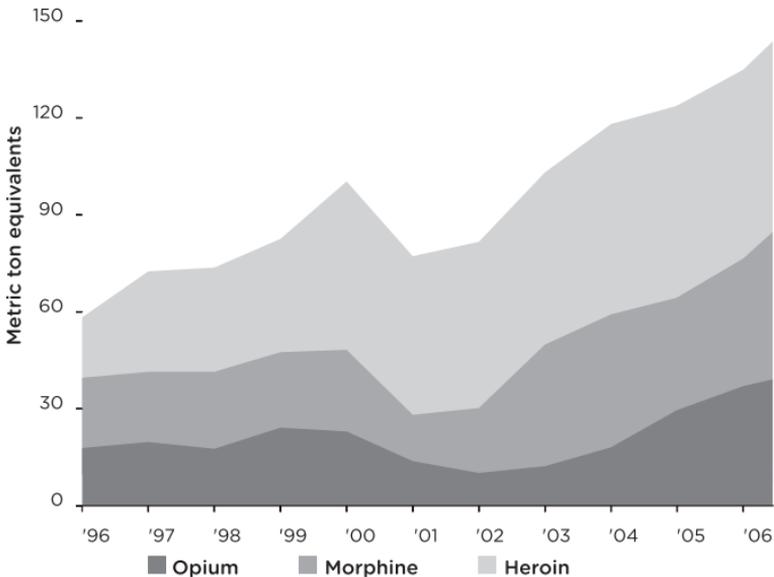
A second characteristic of wickedness is that there should be profound disagreements within the agencies and stakeholders concerned with the issue. This is not hard to demonstrate in the case of heroin use. Within official policy there are different objectives that are often in conflict – but the conflicts are neither acknowledged nor addressed.³⁰ One goal is to reduce the use of heroin (and other illegal drugs), which leads to all the ‘prohibi-

Figure 2 **Wholesale heroin prices in Europe and the USA, 1990-2006 (US\$/gram)**



Source: UN Office on Drugs and Crime, 2008 World Drug Report

Figure 3 **Global opiate seizures, expressed in heroin equivalents, by substance, 1996-2006**



Source: UN Office on Drugs and Crime, 2008 World Drug Report

tionist' policies and activities such as targeting supplies of the drugs, targeting dealers and arresting those found in possession of illegal drugs. Allied to this goal is another, which seeks to reduce the scope and occurrence of organised crime. The trade in illegal drugs is highly lucrative – and countering this is the purpose of much of the money laundering regulations. Another goal is to reduce drug harm, in particular the health risks and acquisitive crime that result from an expensive addiction.

However, these goals can pull apart. If the strategy of reducing supplies is successful then the street price will increase – as will the level of acquisitive crime that addicts have to undertake to maintain their addiction. Similarly, the health risks are increased by reducing supply, since dealers will simply increase the additives mixed with the heroin (to increase the bulk) – and many of these are harmful to health.

Another goal is to reduce the harm caused to communities as a result of the use of heroin, a focus of the government's most recent drugs strategy, *Drugs: Protecting Families and Communities*.³¹ This includes street gangs, prostitution, dysfunctional families – often associated with anti-social behaviour and petty criminality – and a range of other issues such as hazards associated with discarded needles. This goal is intimately associated with issues of deprivation and poverty – to which we'll return when considering the linkage of heroin use to other issues.

The latest government drugs strategy mentions all the goals outlined above: reducing drug use, increasing enforcement against drug dealers, reducing drug-related crimes, and mitigating the harms related to drug use.³² Yet there is little acknowledgement in this strategy as to how these goals can conflict and need to be traded-off against each other, and little guidance as to how such trade-offs should be resolved.

Since 2000 UK drugs policy has been increasingly focused on drug treatment, with substantial increases in funding for treatment programmes, and the establishment of the National Treatment Agency in 2000. Treatment enrolment for heroin addiction in the UK doubled between 1998 and 2005.³³ The policies have been characterised as 'crime driven and treatment led'.³⁴ Increasingly, in line with the strategic focus on reducing

drug-related crime, drugs treatment is tied to the criminal justice system, through the 'Drugs Intervention Programme'. This aims to 'grip' high-harm-causing drug users in treatment as they pass through the criminal justice system.

The system of interventions is taking an increasingly coercive shape. More and more, sentences with drugs treatment programmes – most notably drug rehabilitation requirements [DRRs] – are given to addicts convicted of drug-related crimes.

From 2006 to 2007 just under 16,000 community sentences with drug treatment programmes were issued, and the government's 2008 drugs strategy set the objective of increasing the number of DRRs by 1,000 in 2008/09.³⁵ This is a successful strategy for reducing acquisitive crime since the addict adopts methadone as a replacement for heroin. However, methadone is at least as addictive, and may be more addictive, than heroin – so this does nothing to reduce the number of drug users, nor does it address the rehabilitation of those addicted. Whether these treatments 'work' is therefore the source of disagreement, which stems from more fundamental disagreements about what the goals of drugs policy should be. Some commentators credit these DRR treatments for the reduction in drug-related crime, while others decry what they see as the abandonment of addicts into 'chemical gulags'.³⁶

Another example of the differences in perspective that exist came to light in an article for the *Independent* newspaper in August 2008. The author Julian Critchley, the former director of the UK Anti-Drug Coordination Unit, recalls how he and many other civil servants did not believe in the drugs policies that they were administering.³⁷ He eventually resigned, feeling that his work was failing to address, and in some cases exacerbating, the very problem he was charged to manage. Critchley's ex-department was an attempt to introduce a more holistic approach to the problems of drug use, and wrest control of the issues from the Home Office with its criminal justice and enforcement focus. The experiment failed, however, and once again the Home Office leads on UK drugs strategy and policy – which points to yet another dimension of goal conflict; namely departmental turf wars.

Away from official policy there is a steady stream of NGOs and other bodies advocating an approach based on regulation and control, not prohibition. There are many different ‘models’ advocated, including those deployed elsewhere such as in Portugal.³⁸ The main thrust of most of the non-prohibition proposals is to break the link between addiction and crime, and thereby release resources for addressing the core addiction issue directly.

It is not our purpose to judge the various goals or proposals for different policies. It is clear from the steady stream of reports and reviews that there is widespread disagreement about the goals of ‘drugs policy’ and how to proceed.

The third characteristic of wickedness is the degree to which the issue is connected to other issues – issues that may themselves be regarded as wicked. We have already referred to the very strong link to poverty and deprivation – which is a paradigmatic wicked problem. This link is acknowledged in recent UK government drugs strategy.³⁹ Another strong inter-connection is, as mentioned above, the overlap between crack and heroin addiction; in our interviews, frontline drugs workers were especially concerned about the relatively low resources for crack addiction in comparison with heroin addiction, and argued that it did not make sense to treat one problem without treating the other. There is some evidence to support these worries; in 2005, 80,000 heroin addicts but only 7,000 crack addicts were in structured treatment programmes for their addiction.⁴⁰

The other obvious and important link between heroin use and other issues is through the links to crime, and there are several of these. The first is the obvious link to acquisitive crime used to finance an expensive addiction, and there is also a link here to prostitution: many of the most vulnerable street sex workers are heroin addicts. The second link is to serious and organised crime. As indicated earlier, illegal drugs are extremely lucrative and support a global network of criminal activity. As will become clear when we explore the issue of gangs, illegal drugs also have a key role to play here in attracting members into a criminal lifestyle. The third link is the issue of criminalising a significant proportion of the population; of the 82,000 prisoners

in the UK, 10–15 per cent are charged with drugs offences.⁴¹ These links present major challenges to policy makers, and despite the government's recent attempts to adopt a more holistic approach to the problems of drug misuse, the current focus on drug treatment programmes has been criticised as being overly narrow. The UK Drug Policy Commission's report *Tackling Drug Markets* argues that community sentences with drug treatment components:

*are limited in their capacity to tackle wider social and environmental factors that can undermine an individual's resilience to drug markets and drug use. These factors have previously undermined demand reduction efforts aimed at tackling illicit markets.*⁴²

A fourth characteristic of wickedness is that there is no clear sense of completion. The difficulty with this characteristic is that some of the proponents of particular policies or solutions may well have a clear idea of what completion looks like – even though from other perspectives it may appear quite unrealistic. For example, prohibitionists may assume that eliminating the supply of heroin to the UK would eradicate the problem and represent closure; but who seriously believes that it is possible to prevent all illicit supplies of heroin into the UK? Similarly, some of those proposing legalisation of one sort or another may consider this to be closure on the criminal aspect of heroin use, but it will certainly not lead to the elimination of harm, either to those using the drug or to the families and communities involved. As one drugs worker told us:

I think the aim should be damage limitation – not making the problem worse. That doesn't sound very innovative or aspirational, and it isn't what governments want to hear, but we need to focus on not making the lives of drug users worse.

Unintended consequences

Wicked issues, such as drugs use, are characterised by unintended consequences – such as the feedback between

reducing supply and increasing the crime and health costs. Another unintended consequence arises as a result of random drugs testing, particularly in prison where a spectrum of drugs is regularly available to inmates. One of the features of heroin is that it disappears from the body and cannot be detected by a drug test after a period of 24–48 hours. This is in sharp contrast to less addictive drugs such as cannabis, which remains detectable in a user's blood for up to three weeks after use. As a result, some inmates will choose to use heroin rather than cannabis simply to reduce the risk of being detected by a random mandatory drug test.⁴³

A report from Maher and Dixon in 2005 looked at the unintended consequences of police enforcement crackdowns on Australian heroin markets, finding that the dispersal and disruption of these markets actually increased some public health harms as drug users became more covert and harder to track, undermining harm reduction efforts; rises in hepatitis C were correlated with the imposition of police crackdowns.⁴⁴ Another example – of unintended and *unforeseen* consequences – is the Australian 'heroin drought' of winter 2000/01. The supply of illicit heroin fell dramatically, and as a result the street price of the little heroin that was available increased. The Australian police have claimed that credit should go to their enforcement efforts for bringing about the 'drought'. This is controversial, and some claim that environmental conditions in the opium cultivation areas of South East Asia played a far greater role than the Australian police did.⁴⁵ However, it is far from clear, even if the Australian police *were* responsible, that they should claim it as an unalloyed success. While rates of heroin use did indeed decline, Australia found itself with a new and rapidly growing problem: crystal meth addiction.

These are not isolated cases of unintended consequences; there are dozens more illustrating the complexity of the underlying issues, which are often ignored. A National Treatment Outcomes Research Study showed that 40 per cent of people on methadone programmes also became dependent on alcohol,⁴⁶ presumably because the core issue of what was causing the addictive traits was not being addressed. If an addict

volunteers to enter a programme to treat his addiction he will be confronted by an 18-month waiting list – long enough to undermine any commitment. In contrast, someone on drugs and committing crime – and not at all motivated to ‘get clean’ – will be fast tracked.⁴⁷

These unintended consequences demonstrate that the system does not respond to policy interventions in the way envisaged by policy makers. So the issue of heroin addiction meets all the characteristics of wickedness identified earlier.

A systemic approach

Our aim in exploring the issue from a systemic approach is *not* to derive new policy recommendations but to illustrate ways in which such an approach guides one to a new appreciation of the issue. Sometimes the questions raised do have obvious policy implications – but what we wish to emphasise are the implications for the policy *process* and its links to political institutions. One approach that we believe deserves attention is systems thinking. Systems thinking is about thinking about the world in a different way.⁴⁸ The difference will manifest itself in several ways:

- It will involve asking different questions about the issue or problem, often challenging deeply held assumptions and ‘first principles’
- It usually requires engaging with more of the individuals involved in the ‘system’ of interest
- It will focus more on relationships, processes and improvements (as opposed to data, goals and solutions)
- It will clarify the limits on what can be achieved by any intervention or policy
- The resulting actions may be similar or different from those determined by more conventional ways of thinking; but there will be a greater appreciation of ‘side effects’ and the need for flexibility and autonomy

This list of characteristics makes it clear that systems thinking is not a ‘silver bullet’ that can ‘solve’ hitherto

intractable policy issues. Rather it is an approach likely to make the policy making less certain, more modest in its aspirations and, surprisingly, more effective. Appreciating how complex systems behave enables one to:

- avoid the worst ‘unintended consequences’
- avoid overestimating what can be achieved
- identify ways to be most effective

Systems thinking is a holistic approach to addressing complex issues, in contrast to the reductionist approach that is most widely used. Reductionism, breaking complex issues into smaller components that can be separately understood, works well except where the issue one wishes to address is in the *relationships between the parts* rather than the characteristics of the parts. A holistic approach focuses on these relationships and one of the arts of being a systems thinker is to choose the appropriate level of analysis to keep the key relationships in focus.

Where there are different conceptions of what is occurring, characterised by disagreements about what is wrong and what should be the goal of any intervention, then the appropriate systemic approaches are *pluralist*. This means that different conceptualisations of the issue and the system are acknowledged, as are different goals and values.

Framing the issue

The most profound difference highlighted by a systems approach is how the issue of heroin use is conceptualised, from ‘prohibitionist’ and ‘harm reduction’ to ‘addiction’ and ‘legalisation’. The prohibitionist perspective regards illegal drugs as bad and criminalises drug use and possession; drugs policy is seen as a matter of upholding the law’s authority. This is the origin of ‘the war on drugs’ and is the basis of the strategy to reduce supply and the laundering of ‘drug money’. Framing the issue in a prohibitionist way can often mean that people and agencies advocating alternative policies are regarded as being ‘soft on drugs’ – which remains a politically potent accusation.

The harm reduction perspective considers illegal drugs as having different levels of harm to individuals and society, and seeks to adjust policies and legislation to reflect this. Recently the government has ignored the recommendations of the Advisory Committee on the Misuse of Drugs on reclassifying cannabis⁴⁹ and ecstasy.⁵⁰

In relation to heroin, the harm reduction approach has focused mostly on reducing the incidence of acquisitive crime by switching heroin addicts to methadone. There has been much less focus on addressing the wellbeing of the addicts or their families and communities (although, as noted above, the government's latest drugs strategy seeks to address this gap). The criminalisation of addicts is regarded as an opportunity to coerce them into treatment.

The addiction perspective is more focused to enabling addicts to overcome their habit and start to lead more normal and productive lives. From this perspective heroin is just one of a spectrum of destructive addictions and it is recognised that effective treatment requires addressing the root causes of addiction. These consist of psychological factors, often including abusive childhoods, as well as current living conditions – which often involve being out of work, homeless and not in a supportive relationship. Switching heroin addicts to methadone is not regarded as a treatment, because methadone is itself so addictive. From this perspective the main reason why government policy is failing is because it fails to recognise and address the underlying addiction problem.⁵¹

The legalisation perspective argues that prohibition has never worked and has always increased criminal activity. This perspective presumes that there will always be people who wish to experiment and use different drugs and that the safe way to let them do this is to make drugs legal – but subject to regulation and control. The claim is that such an approach would largely remove the high level of criminal activity, seriously reducing the health impacts. Many advocates of this approach also advocate addressing the link between drug use and deprivation, poverty and mental illness.⁵²

These brief characterisations of the different perspectives do not do justice to the complexity and subtlety of many of the arguments. Also, these perspectives are not always self-contained; there is considerable overlap and many practitioners and policy makers affirm aspects of multiple perspectives. However, these broad distinctions do illustrate that each perspective has a coherent paradigm that accounts for what is occurring and leads to very different conclusions about what needs to be done. This is normal for ‘wicked issues’, and if most of the agencies involved are to work together effectively, then an approach that acknowledges these different perspectives is essential. The biggest obstacle to even seeking such an approach is the requirement by ministers that their own perspective, or the perspective of the government, is prioritised. The Centre for Social Justice’s recent report *Addictions* contains many testimonies from drugs treatment workers complaining that the recent focus on reducing drug-related crime does not cohere with their own perspectives on what are the key problems to be addressed.⁵³ The following quote is typical:

*Government targets are asking me to view my business in a way that’s just not capturing the work that we do. It’s about getting bodies into a system, head counting and just watching them, it’s sheep dipping basically.*⁵⁴

But what would a policy process look like that started by acknowledging the validity and contribution from all the different perspectives operating? Where there are clear conflicts of value, for example between the prohibition and legalisation perspectives, to what degree could Heifetz’s strategy of adaptive leadership⁵⁵ contribute to a way forward? His strategy is for leaders (politicians) to ‘give the work to the people’ so that the conflicts are resolved by adaptation, rather than held unresolved by policies that favour one side or the other of the debate.

There are less profound differences between those advocating harm reduction and addiction treatment. They share a concern for improving welfare, both of those addicted and those

who suffer as a result of addicts' behaviours. What suggestions would emerge if they were to work together? In what ways could treatment services be improved? What have frontline voluntary sector staff, probation and police officers to contribute to the debate? These avenues are not explored in the detail that they could be, because current policy processes start by devising strategies and interventions to serve a particular perspective, rather than focusing on exploring ways of encompassing differences.

Systemic approaches do not fudge these differences but rather choose to work with them to establish areas of agreed improvement. Where there is broad agreement on what is required, so-called 'hard systems' approaches can be used, which often produce dramatic improvements in overall performance.⁵⁶ Both the pluralist and hard approaches make use of the insights gained from cybernetics about how to control complex systems, how to handle variation and the various roles of feedback in the overall performance of complex systems.

Leaders and senior managers are often 'systems thinkers', though rarely through any formal education process. Most senior people come to systems thinking by reflecting on their experience of seeking to manage a complex system. Much of systems thinking therefore appears as 'common sense', though it is surprising how little of it is in evidence in policy. It is also the case that the use of formal systems tools and techniques can provide a useful discipline for stepping back from the pressures of everyday work in order to appreciate the systemic issues, by moving to a higher level of abstraction.

Systems thinking has been around for more than 50 years so there are good reasons why, although elements have occasionally been incorporated into the Prime Minister's Strategy Unit work,⁵⁷ it has not been more widely used in policy. Probably the most important reason is that it is only relatively recently that the sheer complexity and interconnectedness of issues has forced people to realise that the linear, reductionist approach, breaking complex problems down into smaller pieces and working linearly from a problem definition to a solution, will not 'solve' all the major issues. The failures had to be consistent

and persistent enough for people to be willing to give up on processes that have worked well for many issues.

The second reason is captured in a quote Geoff Mulgan borrowed from Keynes: ‘there is nothing a government hates more than to be well informed; for it makes the process of arriving at decisions much more complicated and difficult’.⁵⁸ Of course, the counter argument is that failure to be well informed will lead to unintended consequences and sometimes outright failure, but for someone under time pressure to ‘do something’ the latter defers the problem to the future. Another reason for its lack of popularity is that systems thinking, particularly in the domains of political and social issues, makes clear that most complex systems are not controllable and behave unpredictably to interventions. This is a profound challenge to the assumptions built into political processes and policy making – one that few individuals are willing to face and learn from.

Also, of course, there are severe pressures on governments as a result of the vagaries of the electoral system, a justified fear of media outcry if governments are seen to be ‘soft on drugs’, as well as time and resources pressures. These pressures all limit the feasibility of taking a more holistic and systems-based approach to issues such as drug misuse.

Systems thinking can help policy makers and practitioners respond to ‘wicked issues’. A systemic approach is characterised by a series of key questions:

- *What are the different conceptualisations of the issue? What are the different perspectives operating? How do these differ in terms of accounting for what is wrong and prioritising different goals or outcomes? Are there core value differences shaping the debate? Are there voices from within the system that are being ignored or discounted?*
- *What is known about the behaviour of the system involved? What interventions have been tried? And with what outcomes? What are the main feedback loops operating and how do these condition the overall system behaviour? Are there significant delays in the system (time lags between an intervention and an outcome)?*

- *How is this issue connected to other issues?* Are these other issues wicked and how do they influence this issue? What is happening, or being proposed, to these connected issues?
- *What are the key relationships in this system?* What scope for change is there in these relationships? How can the relationships be influenced – and what other effects would such influences have?
- *Who in the system has information on the functioning of the system?* How can we bring together the people with this knowledge with a view to creating a ‘bigger picture’ of what is going on? What are the sources of variability or difference within the system? How are these accommodated at present – and with what effect?

Although these questions emerge from systems theory, they are obviously similar to, and relate directly to, a number of the characteristics of wickedness identified in the previous section. This is not surprising since systems thinking has been developed, particularly over the last decade or so, to address issues that involve high degrees of complexity and wickedness. This is a key reason for advocating the use of this approach when one has to deal with a wicked issue.

Connecting the dots

The most common addictions – alcohol, nicotine and gambling – are found across all income groups’ social groupings. Heroin addiction stands out as being the one strongly associated with poverty and deprivation. For example a Strategy Unit report suggests: ‘Most heroin and crack use results from deprivation and is often an escape from multiple difficulties in users’ lives.’⁵⁹ The reason for exploring this link is because it has strong implications for the success of any treatment or intervention. If it is correct that a part of the appeal of heroin is that it makes an intolerable life OK, then to break the addiction the person has both to overcome the physical withdrawal symptoms *and* to find another way to make their life OK. This is well known to those involved in drug rehabilitation – and it is a key reason why treatments enforced as part of a criminal procedure cannot

succeed unless they are supported by enabling the individual to find work, a home and be part of a supportive community (such a holistic ‘problem-solving’ approach is now being trialled in drugs courts in Leeds and west London, which aim to provide continuity of support to drug users, from their entry into treatment to helping to meet housing and employment needs as part of their ‘social reintegration’):⁶⁰

I think there’s no doubt that the public health side of things has suffered because of the emphasis on criminal justice responses.

Interview with a drugs charity worker

At present policy is focused on the reduction of drug-related crime, in particular seeking to reduce the phenomenal number of acquisitive crimes committed by heroin users. The strategy for doing this has focused on shifting addicts from heroin to methadone – an opiate as addictive as heroin; the main reason it does not lead to crime is because it is provided on prescription. Our society prides itself on having safety nets to help the most disadvantaged and deprived to lead useful lives. Yet in this case tens of thousands of people are left trapped in a legal addiction.

In Leeds, schemes for personalised budgets for drug addicts’ treatment have been piloted. Thus, the perspective of the addicts themselves is afforded greater weight in tackling the complex problems they face. In the interviews we conducted for this report, we heard of some exciting success stories in these pilot schemes, in which personalised budgets were allowing the flexibility to address the very complex needs of addicts in a way which centrally imposed targets fail to achieve; one addict, a former professional musician, had bought a cello with his personalised budget, and playing music helped him to cope with ceasing heroin use.

Start where the people are. Be prepared to be innovative and flexible. Evidence-based policy is fine as far as it goes, but evidence can stifle innovation.

Interview with a drugs charity worker

It is not possible, in advance, to know what would be the outcome of a serious investigation into the root causes of the growth in addiction. Nor can it be known what would emerge from a serious attempt to bring together the different perspectives on the issue. There would be nothing to lose by exploring both approaches, and there could be much to gain. Different perspectives will highlight different problems and different improvements to be made, and accommodating disagreement rather than prioritising one perspective can help to avoid the kind of institutional fragmentation and loss of morale which Julian Critchley described earlier.

3 Climate security

People are very uncomfortable talking about complex systems. They're very comfortable talking about causality. And when you move into a space where things can have multiple causes... People don't have the mental architecture.

Interview with a think tank working on sustainable development

From concentrating on pluralism and disagreement over wicked issues, we now focus on another characteristic of wicked issues – complexity and unpredictability. In October 2006 the UN Security Council held its first debate on climate change, a debate called by the then UK Foreign Secretary Margaret Beckett, who argued that climate change was ‘a threat multiplier’.⁶¹ That the debate was held proved to be deeply controversial. The representatives of some states saw climate change as a security issue, with the UN Permanent Representative of Namibia even referring to rich countries’ carbon emissions as ‘low intensity biological warfare’ against the Third World. Representatives of China and India argued that the Security Council was an inappropriate forum to discuss climate change. Liu Zhenmin, the Chinese representative, argued that climate change was ‘in essence [a] sustainable development issue’, and should not be approached through the lens of ‘security’.⁶²

Three years after the UN Security Council debate on climate change there is a broad consensus that climate change is caused by human activity. There is also consensus that beyond a critical threshold point of a 2°C rise in global temperature there will be severe negative consequences, including irregular rainfall patterns, leading to desertification and water-stress; substantial glacial retraction, leading to flooding and water scarcity (in highly populated areas which rely on glacial melt water, including northern India, Pakistan and China); and

flooding, as a result of ocean expansion with rising sea levels caused by melting polar ice caps.⁶³ Global temperatures have already risen by just under 0.8°C and even if all greenhouse gas emissions were curbed today, as a result of inertia in the climate system, we would still be committed to global warming of 1.2°C above pre-industrial levels.⁶⁴ The World Health Organization (WHO) has estimated that global warming has caused millions of additional deaths.⁶⁵

Ultimately climate change is one of increasingly scarce resources pitted against rapidly increasing resources demand. To ensure the global temperature rise remains below 2°C, drastic cuts in the greenhouse gas emissions are needed – an 80 per cent reduction from 1990 levels by 2050 to be specific. The UK government has committed itself to this target in the Climate Change Act 2008, and the Obama administration recently signalled its support for a similar target to be put in place in the USA.⁶⁶ Achieving such large reductions in greenhouse gas emissions globally will be a difficult task considering the rapidly increasing global population, which is forecasted to grow by 2.5 billion in the next 45 years,⁶⁷ and rapidly advancing industrialisation in China and India:

The core political DNA of this you could sum up as 2°C. If we don't do things that keep us within 2°C, then we're into catastrophic consequences and you will get so much systems breakdown that the solutions will never catch up with the problems, including security related systems breakdown.

Interview with a UK Government department

Even without climate change, increased population (and so increased demand) means that by 2025, 60 per cent of the world's population will be living in areas of water stress.⁶⁸ If temperatures rise above 2°C, causing widespread glacial retreat, the 40 per cent of the world's population who rely on melt water will face extreme water stress.⁶⁹ The 2007 *Human Development Report* predicts that a 3.4°C rise in global temperatures by 2050 – a rise which would occur if mitigation efforts failed in the short term – will lead to 330 million displaced people as a result of flooding.⁷⁰

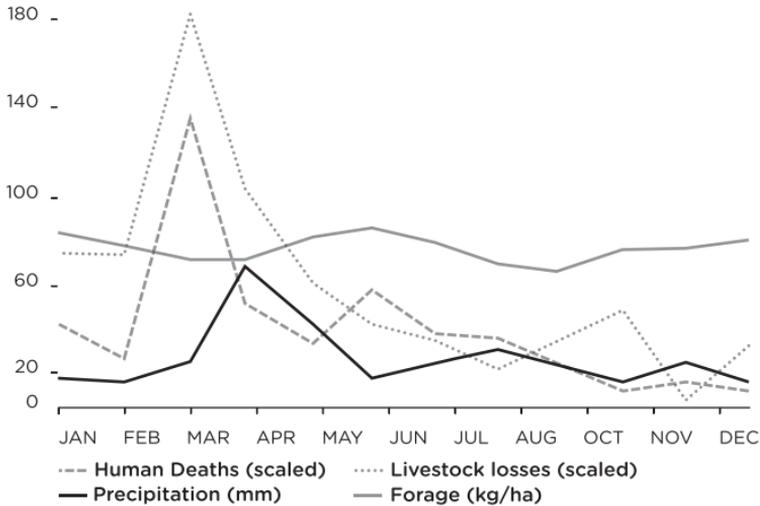
It is therefore not surprising, given the statistics outlined above, that a new debate has emerged on climate security. Climate security presents us with a different kind of wicked issue from the UK heroin trade. While our discussion of the heroin trade had a national focus (although the links to a wider international context were acknowledged), climate security is the paradigmatic example of a *global* wicked issue. The issues governments face are chiefly prospective, insofar as they exist as future threats and worse-case scenarios, in contrast to the here-and-now problems of heroin use. While systems thinking clearly has a role to play in formulating a set of responses to climate security, this chapter will focus on the application of scenario planning – a strategic planning method that has been used in both the public and private sectors to develop flexible long-term plans.

The future is now

The security implications of climate change are becoming clearer. The conflict in Darfur, for example, has been called ‘the world’s first climate change war’ and Ban Ki Moon has argued that the civil war ‘started as an ecological conflict’.⁷¹ While this may be an exaggeration, given the multitude of different factors that have contributed to this long-running conflict, a powerful case can be asserted for the increasingly irregular rainfall patterns in East Africa, and the resulting droughts which have exacerbated the conflicts. Water scarcity has led to land degradation, driving Arab Pastoralists into the territories occupied by subsistence farmers, who make up over 60 per cent of Sudan’s population. This has led to increasing disputes over land worsened by historic religious and ethnic divisions.⁷²

Similar patterns have been observed across Africa. Recent research on the death toll from small-scale conflicts between subsistence farming communities in Uganda suggests that there is a startlingly strong correlation between water scarcity (as a result of irregular or low precipitation) and human deaths from conflict (Figure 4).

Figure 4 **The relationships between precipitation and human deaths from conflict in the Uganda Karamoja Cluster, 2004**



Source: Meier and Bond, 'Environmental influences on pastoral conflict in the Horn of Africa'

Frames of reference

Although there is a broad consensus that climate change caused by human activity is occurring, and must be mitigated, framing the issue in security terms is much more controversial. There are, we suggest, currently four main 'problem frames' through which climate change is viewed. These frames of reference now coexist, and policy makers tasked with addressing issues of climate change must be adept at moving between each of them, both to address different aspects of the problem and to win the support of different stakeholders.

Initially climate change was framed as an environmental issue, and adopted as a cause by the mushrooming 'green' movement. The debate on climate change soon began to be regarded as a problem of sustainable development.⁷³ This debate focused on the negative consequences of a warming global

climate for the poorest countries in the world. In 2006 the economic consequences of climate change for rich and poor countries alike were explored by Sir Nicholas Stern in his report on the effect of climate change and global warming on the world economy.⁷⁴

Recently, however, a new paradigm in the debate over climate change has been advanced: climate security. This debate understands climate change principally in terms of security implications. ‘Security’ can be understood not only in the narrow, ‘traditional’ sense of national security and the avoidance of military conflict, but also in the broader sense of ‘human security’, thus encompassing more general threats to the basic needs of human life (shelter, water and food).⁷⁵

These four frames of reference have, as Nick Mabey’s report *Delivering Climate Security* suggests, different audiences.⁷⁶ The ‘narrower’ sense of ‘climate security’ tends to be a debate led by, and directed towards, the established ‘security community’: the military, defence strategists, high-level government, international security alliances such as Nato and so on.⁷⁷ Here, some of the main questions are how climate change will exacerbate threats of conflict, through effects on resource scarcity, population movement and shifting borders (as a result of rising sea levels). The wider debate on climate security, on the other hand, encompasses a broader range of stakeholders including development agencies, NGOs, corporations and the general public.⁷⁸ These latter debates tend to focus on the effects of climate change on human security broadly conceived, and look at issues such as climate change’s possible impacts on development projects, food and water scarcity, and political instability. Today the debate over climate change, once dominated by the green movement, which strongly links to peace and disarmament campaigns, is now *also* populated by military strategists. Each group has different political backgrounds, perspectives and assumptions. The ‘pluralism’ that occurs in debates over climate change is not simply a matter of disagreement about what the issue is, but more fundamentally a disagreement over the framing the issue. Such pluralism is characteristic of cross-cutting, ‘wicked’ issues. One of our interviewees argued:

The real issue is one of culture; the environment movement comes out of the peace movement, the anti-nuke movement. I think they've always hated security. They've always hated the security community and they never speak to them very well and so they have a cultural bias.

Interview with a UK security analyst

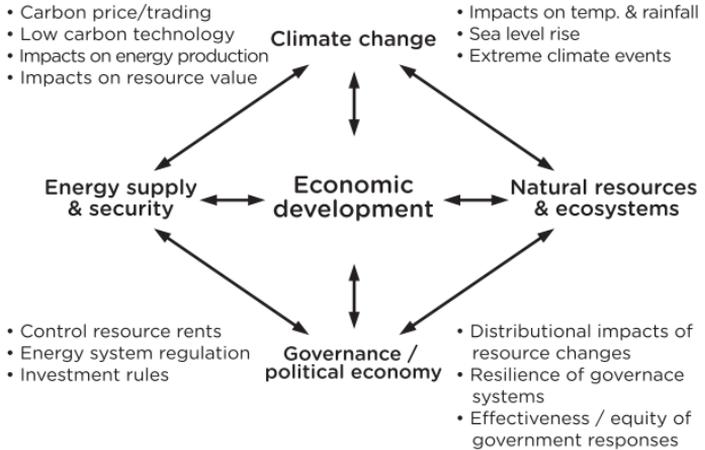
This presents policy makers with two challenges. On the one hand they must tailor their arguments to fit with the perspectives of groups of stakeholders, each of whom frame the issue in a different way. For example, a different type of argument is required to win round business leaders from the one required to win round those in the security community. Above all, business leaders are particularly convinced by arguments that frame climate change as a 'race' for competitiveness in changing economic conditions. However, the danger with this approach is that framing the issue in one way will alienate another constituency. Our concern is that this is already happening, with *climate security* threatening to subsume and 'militarise' other aspects of the issue. Jon Barnett, an academic specialising in development, argued:

The crux of the problem is that national security discourse and practice tends to appropriate all alternative security discourses no matter how antithetical... Environmental change problems have been militarized; the emphasis has been placed on environmental change as a cause of violent conflict rather than on human insecurity; and on exogenous environmental threats to the state, as opposed to focusing on domestic causes of environmental change.⁷⁹

Another concern is that framing the issue of climate change in terms of security threats, while valuable, may now be becoming too dominant in political discourse, crowding out other 'problem frames' on the issue. The scepticism of the Chinese representative in the UN Security Council debate on climate change is indicative of the kind of 'push back' that can occur when increasing focus is put on a particular, not universally shared, way of framing an issue.

So a principal concern for politicians and policy makers is how to 'frame the issue'. Inevitably wicked issues will be seen

Figure 5 **The Interdependencies between climate change, energy security, resource use and development**



Source: Mabey, *Delivering Climate Security*

through multiple ‘problem frames’ and such perspectives will have to be accommodated, rather than subsumed under a single banner. Separately we need to ensure that we do not fall foul of the human tendency to oversimplify. Climate change is certainly a security issue, but to view it solely through a ‘security lens’ is overly simplistic.⁸⁰

Linkages

The case study of climate security vividly illustrates the way in which wicked issues are ‘unbounded’. Rather than being one discrete problem, ‘climate security’ is an umbrella term encompassing a mass of interconnected problems, *which are themselves connected to other wicked issues*. These issues of climate security are primarily a matter of linking together clusters of different contributory factors to security threats, and assessing in what ways climate change could impact on them. Figure 5 shows one way of conceptualising these linkages.

How, for example, will the Pakistani agricultural economy be affected by increasingly severe droughts and ocean acidification as a result of rising carbon emissions? How will any ensuing economic problems impact on political instability and regional conflicts? Retreating glaciers in the Himalayas will drastically increase water scarcity for the millions of people in northern India and China who rely on glacial melt water. Himalayan melt water accounts for 70 per cent of water flow into the Ganges and 50–60 per cent of flow into Asia’s other major river systems.⁸¹ The glaciers, which regulate the water supply to the Ganges, Indus, Brahmaputra, Mekong, Thanlwin, Yangtze and Yellow rivers, are believed to be retreating at a rate of about 10–15 metres (33–49 feet) each year.⁸² How will China and India resolve this competition for increasingly scarce resources – through conflict or cooperation?

To take another example, flooding caused by a projected 1-metre sea level rise as a result of a temperature increase of 3–4°C is projected to displace 70 million people in Bangladesh.⁸³ What will be the security implications of the migration of millions of environmental refugees? From the 1970s to the 1990s, internal migration to the upland Chittagong areas led to long-running civil conflicts, but then the numbers involved were much lower (600,000) than the projections if climate change occurs. At present, India is building a ‘security wall’ along its border with Bangladesh in preparation for this mass migration.⁸⁴

Such interconnected issues clearly become the responsibility of more than a single government department – they demand a shared awareness across the whole of government. As one interviewee suggested:

There is no sense of ownership or responsibility. What you need to get to is a shared ownership where Whitehall says, this is a systemic, a deep systemic problem. Unless we solve this problem urgently, then I won’t be able to achieve any of the other things that my department is trying to do.

Interview with a UK Government department⁸⁵

Yet the process of reductionism is deeply ingrained inside government. In conducting research for this report we observed

that a common reaction from people working in the broadly defined ‘security community’, both in government departments and elsewhere, was a scepticism for ‘what *climate change* had got to do with their work’ – a testament perhaps to how we rarely ‘connect the dots’ between complex issues.

Complexity

Climate security is a matter of managing extreme complexity. While detailed and reliable scenarios for the environmental effects of different levels of greenhouse gas emissions and climate change exist (although there is growing evidence that climate change is exceeding predictions⁸⁶), the resulting political, social and economic changes and security threats remain far beyond our predictive abilities. This unpredictability is particularly challenging, because climate change will lead us into uncharted waters. As Nick Mabey writes, ‘implicitly we tend to think of the future as being similar to our current world, albeit on a larger scale with a faster pace. However, future changes in the scale of resource use will result in profound shifts in how we organize society and in relationships between countries.’⁸⁷ The past will provide little guide to the future.

Exacerbating this complexity is the likelihood of significant unforeseen consequences resulting from measures to mitigate the effects of climate change. This is because mitigation often takes the form of interventions into complex systems, such as international energy markets. For example, the Kyoto protocols allow developed countries to meet their obligations on emissions reductions by investing in low-emissions technology in developing countries. The ‘Clean Development Mechanism’ (CMD) is intended to achieve efficiency gains in the shifts to low-carbon technology, due to the lower costs of the technological shifts in developing rather than developed countries. However, companies and governments that could profit from this manipulated the system and excessively overcharged CDM investors by up to 50 times more than the ‘clean development’ technology costs. It has been estimated that more than half of CDM investments are ‘dead wood’; they would have happened with or without CDM

funding.⁸⁸ Therefore the CDM has largely failed to advance the shift to low-emissions technology.⁸⁹

Likewise, the European Emissions Trading Scheme, which provides permits on carbon emissions to be traded between European companies, failed to achieve reductions in carbon emissions, at least in its first phase, as carbon price fell dramatically in 2006 as a result of over-allocation of carbon permits.⁹⁰ Partly because of the global recession, carbon prices are now falling once again.⁹¹

Addressing climate security requires a new conception of risk from policy makers; one that is long term, and able to accommodate very complex, multi-causal threats and high degrees of uncertainty. As one interviewee suggested, ‘Geopolitics looks forward. It requires very little evidence. It’s mostly about stories and it’s non-specific.’ A short-term security and development focus is especially inadequate now that we face the prospect of a radically altered environmental and geopolitical situation as a result of climate change. For example, International Alert’s recent report *A Climate of Conflict* warns that current development projects in Liberia, which involve re-training former soldiers as farmers, might be unsustainable if climate change exacerbates desertification in the region.⁹² The risk is that as a result of climate change, the development projects will fail, leading to a group of unemployed and embittered former soldiers in the region. One valuable aspect of the (not uncontroversial) ‘securitisation’ of the climate change debate has been to raise these ‘worst case’ ‘what if?’ questions in the face of extreme complexity:

We don’t know where the next risk is going to come from, we don’t know which continent it’s going to be in, and even if we did, we’re not going to know who’s going to be in power at that time and what the weather’s going to be like. So we just have to assume the worst for everything and just plan a very broad-based solution.

Interview with a think tank working on security and defence policy

Addressing issues of climate security demands us to draw connections between different risks that are often treated

Figure 6 **Some of the major risks involved in climate security**



Source: Ackerman, 'Climate security, national security, and the *Quadrennial Defence Review*'

separately, and map long-term trends onto short-term threats. Discussing 'climate security' is to have *already* 'connected the dots' between divergent issues. As a report by the Development, Concepts and Doctrine Centre states, climate change is a 'ring road' issue, connecting together and impacting on what are themselves monumental wicked issues: population change, global food production, international and national security, and energy use, to name just a few.⁹³ Managing climate security thus requires a particular mental architecture, one comfortable with and sensitive to extremely complex systems and 'big picture' thinking. Figure 6 highlights some of the major risks involved in climate security, and how they push security actors beyond their traditional 'portfolios' of capabilities.

An example of these cross-cutting risks is described in more detail by one of our interviewees:

One recent example is that we've run a big project with all of the leading energy companies in the UK to take the climate data and run it through their whole business and to say in 10 years, 20 years, 30 years time, what's going to change and how is it going to impact on their choice. There's a big issue with high voltage buried power cables... in 30 years time if the

temperature of the soil is several degrees more than it is now, then it completely changes all the assumptions about how long these cables will last, which then alters investment choices. So that's just one tiny example of looking at a particular business area and thinking about a different future with different assumptions.

Interview with a think tank working on sustainable development

Scenario planning

The extreme unpredictability inherent in a wicked issue such as climate security means that many standard approaches to policy and strategy development based on evidence-based predictions are unlikely to be of use. Forecasting, the process of estimation in unknown situations, has proved to be a reliable approach to predicting the future in periods where the context and underlying patterns of growth remain constant. However, in situations characterised by complexity, turbulence and ambiguity, over-reliance on forecasting can be a fatal error. It does not enable groups and organisations to appreciate and address their significant challenges, such as systemic or emergent risk, socially messy or wicked problems or puzzling and seemingly intractable situations.⁹⁴

Angela Wilkinson, the head of Scenario Planning and Futures Research at the James Martin Institute, believes that:

*Scenario planning can encourage attention to the social construction of ignorance by individuals, groups and organisations, as well as other collective knowledge-based biases that stem from disciplined expertise and group think.*⁹⁵

Scenario planning has become an increasingly important tool for helping decision makers go beyond forecasting and take a long-term view of a future that is inherently unpredictable. From the military to corporate strategy to government policy, scenarios can be a powerful discipline for embracing uncertainty and tackling inertia that thinking about the future sometimes provokes, and helping organisations to make better decisions in

the present no matter what the future holds in store.⁹⁶ Often scenario planning is seen as an ‘optional extra’ for strategy formation, whereas it should be at the core of strategic thinking about complex future challenges.

For example, a recent report by the German Advisory Council on Climate Change, entitled *Climate Change as a Security Risk*, explores the security implications of climate change via a number of ‘conflict constellations’ – scenarios that each focus on a different environmental impact of climate change, and then link this impact to social and political shifts, and possible security threats. For example, the ‘conflict constellation’ on environmentally induced migration builds up a detailed scenario of the possible security threats resulting from climate change causing land degradation and thereby displacing communities. In building this scenario, references are made to historical experience – and in particular the role that land degradation played in civil wars in central Africa in the mid-1990s – and the insights gained from historical analysis are then projected to create fictitious future scenarios. One such scenario imagines that disaster management in Bangladesh fails as a result of the stresses from rising sea levels and increased flooding, as well as political corruption. In this scenario, internal displacement of peoples leads to intra-state conflict (as indeed was Bangladesh’s experience in the Chittagong upland areas in the 1990s), which splits along Hindu and Muslim sectarian lines.

The scenario continues with people displaced from the worsening internal security situation seeking refuge in India as illegal migrants, leading to severe diplomatic tensions between India and Bangladesh. The scenario thus brings together the environmental effects of climate change, localised political and social tensions, and then maps these changes onto the international, regional context. A second, more optimistic scenario is also built up, to explore how successful crisis management by the Bangladeshi government leads gradually to political pressure on India to engage in negotiations with Bangladesh on immigration, defusing a potential catalyst for inter-state conflict.⁹⁷

A number of obstacles to scenario planning ensure that the process is not as widespread or embedded across policy-making

processes. First, a mixture of scepticism, ignorance and a lack of appreciation of how scenario planning can support an organisation's strategy can all lead to inaction. So explaining the value of scenario planning to individuals or an organisation is crucial if they are to be a success.

Second, organisations suffer from optical distortion – a tendency to overestimate what can be changed in the short term, while underestimating just how much can be changed over the longer term. Those countries that have most dramatically improved their economic and social performance over the past 30 years – such as Finland, Sweden, Singapore, Taiwan and Denmark – have all invested heavily in strategic, long-term thinking, and the Singapore civil service has well-developed scenario planning programmes.⁹⁸ The UK government recently embarked on an International Futures Project. The team was tasked with developing a 'shared set of narratives of the future international environment (2010–2020) against which strategic choices [could] be made by Government'. Its initial output was a set of scenarios for government to use to test resilience and adaptability against key uncertainties in areas such as international governance, the world economy, security and the environment.

Third, and unsurprisingly, politicians and policy makers are often focused on the short term, which tends to create a sense of determinism over policies in the belief that they have little or no control over the future:

The point of scenario planning is, therefore, not to tell us what will happen in 15 years time, but to help us live with the inherent uncertainty of the future. Scenario planning works on the basis that many of the trends that will drive the future are already visible today – we know, for instance, that aging populations in the developed world could have a major impact on immigration patterns. By identifying the trends we know are important, and combining them in different ways, we can tell effective stories about the future, and plan to meet its uncertainty.⁹⁹

Climate change clearly satisfies most of the criteria established earlier for 'wickedness'. The successive shifts in

framing the issue have served the purpose of reducing the potential scope of factors to be addressed in policies and thereby made the policy-making process more practical. However, this has severely limited the range of options and alternative futures being considered. In whatever way climate change is framed it is clear that the future will not be a simple extrapolation of the past – and it is here that a scenario-based approach can provide most benefit.

Owning the issues

Lastly, although the challenges of climate security are formidable, the discussion of this case study should not be seen as a counsel of despair. Indeed, in many ways the approaches to climate security, from the UK government and others, incorporate many of the aspects that we recommend in this pamphlet. Just to frame climate change as a problem of ‘climate security’ is already to ‘connect the dots’ between issues, and take a long-term and holistic approach to risk. The rapid ascent of climate security up governments’ list of priorities is proof that, at least in terms of *conceptualising* problems, government is capable of ‘connecting the dots’, even in the face of substantial short-term pressures and shocks. Importantly, one of the main reasons that such an approach has taken root is that those charged with responsibility to lead on the issues – chiefly John Ashton, the UK Special Representative for Climate Change – have an explicit remit to work between and beyond departmental boundaries.

To address unbounded issues effectively, government must charge policy makers with the task of breaking out of ‘silos’, even giving a small number of people ‘ownership’ of coordinating the multi-agency approaches. As John Ashton told us, the ‘framing’ of climate change as a security threat happened ‘because a small group of people tried to make it happen because they thought it would contribute to building the transformational dynamic that we were trying to achieve’. The recent government coordination on climate change and climate security can be seen as an example of good practice in a truly holistic approach to a paradigmatically wicked issue.

4 Gang crime in London

I'm still not sure that we fully understand the London problem. I think [the] Met have started to, but I think the gang problems are completely different; from borough to borough there are different characteristics.

Interview with a UK criminologist

This chapter explores gang-related crime in inner London boroughs in order to illustrate another characteristic of wicked issues, which we term 'ambiguity'. The point here is that it is not clear what the core issue is, let alone how it should be addressed. Until relatively recently, there have not been a large number of dedicated anti-gang strategies, either nationally or locally. The government's first anti-gang strategy, *Tackling Gangs Action Programme*, was published in 2007 despite evidence that gang-related crime was becoming an increasingly severe problem for much longer than this.¹⁰⁰ Media attention, in particular from the *Evening Standard*, has resulted in gang crime being pushed to the fore of the political agenda in the past three years.

Statistics on gang-related crime in the UK are limited, as police forces are not required to log whether a crime was committed by an individual, or in the context of a criminal group.¹⁰¹ This is a serious obstacle to developing understandings of the relevant systems involved in gang-related crime and representative of the institutional inertia that inhibits attempts to manage the issue. Although statistical corroboration is limited, there is a good deal of anecdotal evidence that gang membership, and the influence and impact of gangs over the wider communities, has grown markedly since the 1990s. For example, in his report *Reluctant Gangsters*, about youth gangs in East London, the criminologist John Pitts wrote that the majority of 'key informants' he spoke to during his research felt that young

criminal gangs were a relatively recent, post early 1990s, development in the area.¹⁰²

The rise of criminal gangs in inner city areas is often attributed to the increase in the heroin and crack cocaine markets in the early 1990s, and also the shifting demographics of social housing with many inner city housing estates becoming pockets of severe social deprivation from the 1980s onwards.¹⁰³ Between 1981 and 2006 the proportion of working age social tenants in full-time employment fell from 67 per cent to 34 per cent.¹⁰⁴ In 2006 the Metropolitan Police counted 169 youth gangs in the capital. A Home Office report in 2006 estimated that members of ‘delinquent youth groups’ cause around 20 per cent of all core offences in the UK and 20 per cent of all violent offences.¹⁰⁵

Problem prisms

Our concern in this chapter is how wicked issues raise problems of ambiguity for politicians and policy makers. Although we discuss issues of pluralism, complexity and uncertainty in our short study of gang crime, we primarily aim to show how wicked issues are ‘unbounded’, in the sense they cannot be neatly or definitively formulated. As Rittel and Webber argue, it is through considering solutions to a wicked issue that we learn, or revise our view on, what ‘the problem’ really is.¹⁰⁶ This aspect of ‘wickedness’ presents a profound challenge both to ‘linear’ institutional problem-managing processes and to our ‘habits of mind’.

Policy makers and the broader policy community tend to ignore problems of ambiguity in relation to wicked issues, preferring instead to assume the ‘problem’ is widely accepted, even if the solutions to the problem are unclear. For example, the Centre of Social Justice’s report on youth gangs, *Dying to Belong*, a highly comprehensive piece of work that is sensitive to the complexity of the issues, recommends that an essential ‘linear’ approach to anti-gang strategies should begin with the process of ‘defining the problem’ and then move on to assess the best and most feasible ways to address the problem thus specified.¹⁰⁷

There is very little acknowledgement that the bounds of the problem will be in flux, and ambiguous.

The ambiguities of gang crime can be seen along three main axes: the definition, or characterisation, of key concepts; the complex and varied aspects of the problems; and the interconnected causes of the problem. Thus, not only are there different perspectives on what the issue is – individually and *between* individuals – but also the issue itself is likely to be connected with a range of other wicked issues.

What is a gang?

There is a huge number of contrasting definitions of what a gang is. The concepts used in such definitions – ‘delinquent groups’ or ‘youth gangs’ are, of course, *constructs* – ways of trying to make sense of extremely complex phenomena. Importantly, these disagreements over the definitions of gangs are not simply dry, terminological disputes; rather, they reflect disagreement (and ambiguity) as to the *scope* of the problem – that is, about what lies ‘within’ the problem to be addressed, and what lies outside it.

In 2004 the Home Office gave a fairly minimalistic definition of a ‘delinquent youth group’:

*A group of three or more young people who spend a lot of time in public places, engaged in delinquent or criminal behaviour together in the last 12 months, and have at least one structural feature (either a name, an area, a leader or rules).*¹⁰⁸

The Metropolitan Police now use the definition developed by criminologists Hallsworth and Young in 2004:

*A relatively durable, predominantly street-based group of young people who see themselves (and are seen by others) as a discernible group for whom crime and violence is integral to the group’s identity.*¹⁰⁹

This definition picks out the feature of a *group criminal identity* as key to drawing the scope of the problem. Reflecting a

different focus, the definition offered in the Centre for Social Justice's report *Dying to Belong* adds criteria relating to the structural features – such as hierarchies or a name – and the role that *conflict* plays in cementing gang identities:

*A relatively durable, predominantly street-based group of young people who (1) see themselves (and are seen by others) as a discernible group, (2) engage in a range of criminal activity and violence, (3) identify with or lay claim over territory, (4) have some form of identifying structural feature, and (5) are in conflict with other, similar, gangs.*¹¹⁰

The scope of the problem gets even more complicated – and we move ever further from the realm of the ‘tame’ problems where we can definitively formulate, and *agree upon*, what the problem is – when we consider that there is a great variety of the types of youth criminal gangs which will be captured by the above definitions, *and* there will typically be a complex differentiation of roles within each gang. Thus new layers of ambiguity emerge. John Pitts, for example, identifies various different typical roles of members in the youth gangs of East London, ranging from senior members who have largely removed themselves from day-to-day criminality, to management roles, to those ‘soldiers’ engaged in extreme but occasional violence, to ‘shooters’ tasked with selling drugs on the street, to ‘youngsters’ engaged in casual violence and intimidation of rival gangs and debtors.¹¹¹

This typology, however, only runs to the core membership of a gang. Drawing on the work of criminologist Robert Gordon, Pitts also identifies another category, that of ‘wannabees’ [*sic*], who are often on the periphery of a gang, adopting some of the symbols and practices of the gang, and doing some of its work, without being a full member.¹¹² Thus the scope of the problem is blurred; there exists a grey area where it is not clear whether we should take some individuals to be part of the problem of gang-related crime, or on the fringes of it. Further complicating matters, gangs will typically engage in a wide variety of criminal behaviour with members in different roles, clustering around different levels of criminality. Pitts found a huge variation in the

severity of crimes caused by youth gangs in East London, with some committing murders and rape, while others committed only much more ‘petty’ crimes such as street-level drug dealing.¹¹³

One of our interviewees described the rapidity of change among gangs:

One of the things that I’m very struck by... is how rapidly things are changing. People are, which they weren’t when I started doing the research in 2006, talking about ‘tinys’, they’re talking about very young kids who are carrying guns and carrying weapons. And there’s much more involvement of girls with gangs.

Interview with a UK criminologist

Gradually, the problem-definition of gang crime is being pushed wider, and encompassing new elements. Many of our interviewees discussed how, through attempting to address problems of gang-related crime, they had come to see the importance of focusing not only gang members, but also on individuals on the fringes of gangs: gang members’ friends, relatives and – particularly – girls with connections to chiefly male gangs.¹¹⁴

The reasons for this shift of focus were twofold; those on the fringes of gangs were often most vulnerable to being pressured to join gangs, and also such individuals often have influence over gang members.

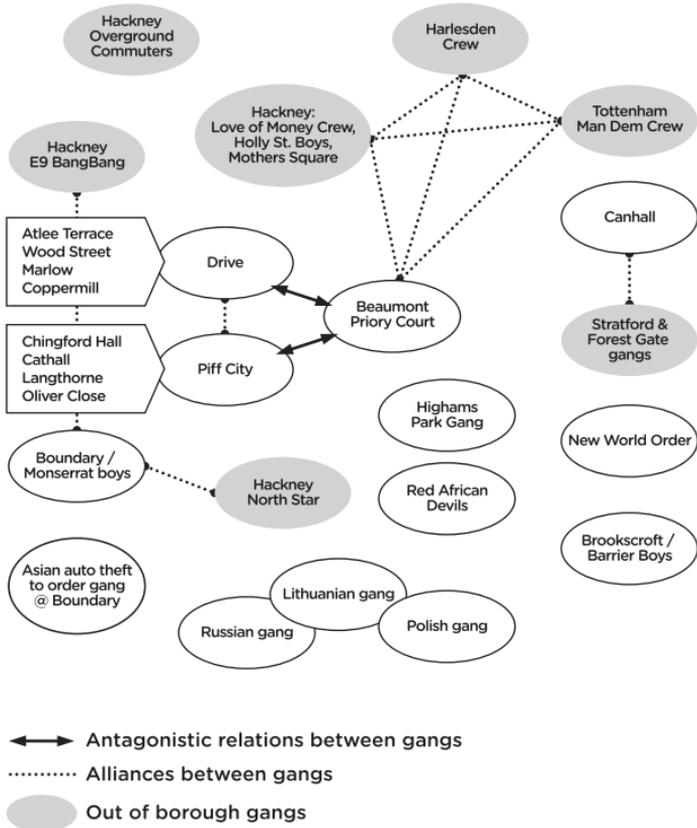
We’re looking at extending our risk management to younger people, and also extending it to people who don’t fit the statutory criteria at the moment, for example relatives of gang members who are at risk of involvement with gangs. Our prevention strategy has to be about shrinking this group, addressing these gang ‘cohorts’.

Interview with a UK criminologist

This illustrates how wicked issues are constantly in flux, and how what we take to be the boundaries of the issue change, as we consider and try out interventions to the issue; we never have a clear, settled perspective about it.

Figure 7 illustrates the daunting complexity of the problems of gang-related crime, by mapping the interconnec-

Figure 7 Affiliations of youth gangs in Waltham Forest, autumn 2006



Source: Pitts, *Reluctant Gangsters*

tions (both cooperative and non-cooperative) between gangs in East and North London. It should be emphasised that these connections are very dynamic, with patterns of alliance and conflict between gangs being in continual flux. This poses enormous problems for the multi-agency approaches that have been established to tackle gang-related crime, as cross-borough coordination has to keep pace with rapidly changing connections

between gangs, spanning across London (note, for example, that West London's 'Harlesden Crew' is in alliance with East London's Beaumont gang).¹¹⁵

I think we need to look at some other connections around gang issues. For example, I think we should be worried about young women that are associating with gangs and their involvement in potential crime; in what ways are they encouraging violence and what motivates them?

Interview with a UK Government department

Increasingly, it is becoming clear that gang crime cannot be understood as individual crime on a mass scale; rather, gangs represent alternative, self-sustaining social systems. One interviewee described gangs as 'communities that have seceded from the empire; they have broken off from the body politic'. This conception of gangs dates back to one of the earliest studies of urban youth gangs: Frederic Thresher's 1927 study of Chicago criminal gangs.¹¹⁶ Thresher wrote of gangs in Chicago existing in 'interstitial' spaces – spaces both geographically and *socially* isolated and marginalised from the mainstream of society, spaces where alternative, closed social systems could become entrenched.

Gangs, as embedded social systems, have their own societal values regarding achievements and ambitions, their own hierarchies and moral codes. Therefore the problem of 'tackling gangs' spills into the dauntingly complex field of *changing whole social systems*, and reintegrating them into the mainstream of society. Tackling gang crime becomes the problem of effecting very broad and deep cultural change at the same time as the alternative society of a gang is sustaining these values. As one interviewee pointed out, in areas in which gangs have become entrenched, cooperation with the police would threaten a whole network of relationships, the very fabric of one's social existence, if one's family members and friends were affiliated to gangs.

Once the problem is recognised in terms of effecting cultural change within social systems, however, it becomes even more ambiguous: what aspects of 'gang-related' culture are to be changed? There is growing evidence that gangs in London represent increasingly institutionalised alternative social systems,¹¹⁷

which are becoming deeply embedded in some areas of London. What is not clear – what can *never* be clear – is how to change the social values and norms of an entrenched social system:

My worry is that even after ten years of New Labour policies of poverty and social exclusion, we have some neighbourhoods that are effectively somewhere else from the rest of society. Places where the police actually can't make a great deal of a dent on the problems.

Interview with a UK criminologist

Understanding the system

Strategies and initiatives to deal with gang-related crime must be grounded in a 'holistic' understanding of the issues as complex networks of interactions between the various aspects of the issue, and disastrous consequences can occur if these interconnections are not taken into account. Although the research contributing to such an understanding is, at least in the UK context, in its early stages, there are promising signs that police intelligence in particular is building up a far more detailed picture of the complex dynamics of gang-related crime.

During our research we were told that a breakthrough in the Met's response to gang crime occurred when, as a result of observing and researching the systems at work, connection between systems was noted; patterns of gang crime were following particular public transport networks. These networks were fault lines of gang activity and conflict. By taking a 'full systems' approach, new connections were observed, presenting new opportunities to manage the issue. Central to such an approach is 'joined up' intelligence and data sharing between institutions. Data sharing between police forces and hospital A&E departments on violent crimes and violence-related injuries has been pioneered in the UK in Cardiff, in order to help the police build up a map of the patterns and trends in violent crime. There has been some evidence of success: since the data-sharing system was enacted, there has been a 40 per cent reduction in violence-related offences in Cardiff.¹¹⁸

Police forces are also attempting to bridge the divergent perspectives on the problems of gang-related crime. For example, some police training exercises in London – such as the ‘Second Wave and Territorial Support Group 4’ workshops in Lewisham – now incorporate role-playing sessions, in which young people from gang-impacted communities swap roles with police officers in ‘stop and search’ scenarios.¹¹⁹

Although the language of ‘wicked issues’ is rarely used by those supporting and working in these initiatives, many of their concerns map on to our characteristics of wicked issues; in this case, role-playing exercises are used to mitigate difficulties stemming from different groups having divergent perspectives on what the problem is (broadly, are the police part of the problem or part of the solution?). One aim of this report is to bring these aspects of wicked problems, which are sometimes acknowledged but generally only implicitly, to the fore, to prevent them being obscured as they often are in policy debates.

Causes for optimism

It is notable that many of the successful attempts to mitigate gang-related crime explicitly take up non-reductionist and non-linear approaches, sharing some similarities with the deliberative framework that we outline in the concluding chapter. One of the most successful anti-gangs strategies has been ‘Operation Ceasefire’ in Boston, USA, which has been so successful that it is commonly referred to as the ‘Boston Model’. The statistics are impressive; in the second year after its inception in 1997, homicides by persons aged 24 and younger in Boston had fallen by 63 per cent, with a 25 per cent reduction in gun assaults.¹²⁰ These results remained constant when controlled for other factors and compared to national trends.

The success of the Boston Model lies in significant part with its truly multi-agency approach. Gang crime requires a holistic approach, with the wide variety of agencies coordinating ‘escape routes’ from gang membership, allied to strong enforcement measures against gangs, which take the form of ‘coordinated leverage’, in which the police and a host of other

agencies – from tax collectors to vehicle licensing bodies – cohere to maximally disrupt the lives of gang members who do not respond to the carrot of the ‘escape routes’:

The strategy that the Met was using was that they got intelligence on this group and then they busted them. But the problem was that then people come in from outside, people come from below. So there’s another kind of explosion of violence. So if you’re going to do that, then the logic would be that you would have other preventive things going on at the same time, which I think is the kind of thrust of the Boston experiment.

Interview with a UK criminologist

The lessons of the Boston Model have been applied elsewhere, also with substantial success. For example, after the inception of Operation Matrix in Liverpool there was a 32 per cent reduction in firearms discharges in its first year reduction in gang crime,¹²¹ while in the first three years of the multi-agency anti-gang strategy in Manchester (MMAGS) there was a 30 per cent reduction in gang-related firearms offences.¹²² As in Boston, these strategies rely on multi-agency coordination. Also, they are testament to the importance of relying on local knowledge of the systems at work, with the key stakeholders working with a substantial degree of autonomy from central control to manage their problem according to their own formulation of what the problem is (interestingly, the government’s Tackling Gangs Action Programme leaves the question of how a gang should be defined as a matter for the local multi-agency groups to decide). As Stephen Brookes, a fellow at Manchester Business School who is running a leadership programme aimed at violent crime in the city, put it:

In most cases involving wicked issues there are no ready answers and the role of the leader is not necessarily to come up with the right answer (which most people think leaders should do) but it is to ask intelligent questions and acknowledge that there are other people who collectively can solve that problem in unique ways.¹²³

When faced with very complex, ‘wicked’ issues, there can be a tendency for central government to lead an overarching

response; at times this holistic approach can appear ‘centrally coordinated and defined’. However, some of the successes of the recent approaches to gang crime prove that, when it comes to wicked issues, being closer to the problem, rather than taking a ‘bird’s eye’ view, provides a deeper understanding of the issues and the systems at work. This is partly because each wicked issue is unique, a ‘one-shot’ operation.¹²⁴

Finally, the Boston Model, and the strategies in the UK that adhere to its lessons, adopt an explicitly circular approach to problem management; the problem to be addressed *is* open to continual revision, in light of the feedback and changed perspectives that result from the attempts to intervene in the problems. As John Pitts writes of the Boston Model, it is marked by an ‘up-to-date problem solving approach, which is subject to regular review and revision’. Wicked problems will remain partially ambiguous. We can never hope to arrive at a final definition of what the problem is, but can remain open to new insights and perspectives. This is especially important with highly dynamic, ever-changing problems such as gang crime. Managing the problems effectively requires that one’s formulation of *what the problem is* remains under continual review, forever a work in progress.

The politics of ‘connecting the dots’

Although much of our argument so far has concerned the theoretical tools and frameworks that can be useful in managing wicked issues, the case study of gang-related crime provides a stark reminder that, often, the major obstacles to ‘connecting the dots’ lie in the *politics* of the issue, in creating the incentives and pressures for stakeholders to take a more holistic approach. In our interviews for this case study, a recurring theme was the difficulty of persuading key stakeholders, and particularly local authorities and schools, to take the problem of gang crime seriously – even, in some cases, to acknowledge the problem of gang crime in their area. For example, a fear of the bad publicity and potential flight of middle class parents can discourage schools from addressing local gang problems directly, through

high-profile measures of bringing in greater police presence to the school.

Political short-termism is another obstacle to adopting a ‘full systems’ approach to wicked issues such as gang-related crime, one that is perhaps largely inevitable given the electoral and media pressures that the national government faces. This grounds another powerful argument for devolving power to address such issues down to local agencies. One interviewee argued that short-term political pressures meant that Westminster was often not best placed to manage the issue, in comparison with local authorities:

It is extremely difficult for national governments to come up with a long, genuinely long, term approach, because they're always working towards the next election and that's just a matter of life. You have to be pragmatic enough to understand that.

Interview with a local city council

5 From architects to gardeners

Some problems are so complex that you have to be highly intelligent and well informed just to be undecided about them.

Peter J Lawrence

In December 1974 Frederick von Hayek, an influential Austrian economist, was awarded the Nobel Memorial Prize in Economic Sciences. Hayek's speech to the assembled elite began with a confession: 'We have little cause for pride', he said, 'as a profession we have made a mess of things'. Hayek's argument rested on his belief that there was reason to be apprehensive about the long-run dangers created in a much wider field by the uncritical acceptance of assertions which have the appearance of being scientific:

If man is not to do more harm than good in his efforts to improve the social order, he will have to learn that in this, as in all other fields where essential complexity of an organized kind prevails, he cannot acquire the full knowledge which would make mastery of the events possible. He will therefore have to use what knowledge he can achieve, not to shape the results as the craftsman shapes his handiwork, but rather to cultivate a growth by providing the appropriate environment, in the manner in which the gardener does this for his plants.¹²⁵

In *The Age of the Unthinkable* Joshua Cooper Ramo argues that to see the world as a ceaselessly complex and adaptive system requires a revolution. It involves changing the role we imagine for ourselves, from architects of a system we can control and manage to gardeners in a living, shifting ecosystem.¹²⁶ Although our collective understanding of this new environment and a greater shared awareness of its interconnectivity may have changed – our decision-making cycles and approach to policy

management has not. We remain hostage to linearity and reductionism while complexity and chaos reign.

Yet this complexity offers an opportunity, rather than just a threat or a challenge, for policy makers. As the interconnections between problems are noted, new points of intervention over these problems can be seen. Policy makers may be able to turn these interconnections between aspects of a wicked issue to their advantage; change one part of the problem and, via the complex network of causal interdependencies, much wider system change may be affected.

It has been a decade since the publication of the Government's White Paper *Modernising Government*,¹²⁷ which set out an ambitious aim of ensuring that policy making would be more joined up, strategic and focused on delivery. The last decade has witnessed major changes in the security environment, a transformation in communication and technology and a revolution in the government's relationship with citizens. These changes have had a profound effect on government, its structures and processes, and most importantly on how it thinks about the important issues of the day.

I've almost run out of words to express how effective the government machine is at sucking all alternative perspectives dry in a way that makes 'silos' seem almost inevitable.

Interview with a local city council

There has been little attempt by governments or wide civil society to construct a framework for thinking about ambiguous, wicked issues and highly complex risks such as climate security, heroin use and gang crime. Our hope is that this pamphlet goes some way to exploring how the concept of wicked issues can help our understanding of the risk in question and determine an appropriate response. Policies to date have clearly had little or no effect – irrespective of the tactical successes governments are liable to point out. A different approach is long overdue; we offer some avenues towards this new approach in this chapter.

Although the government has shown an admirable enthusiasm for 'multi-agency' approaches to complex problems,

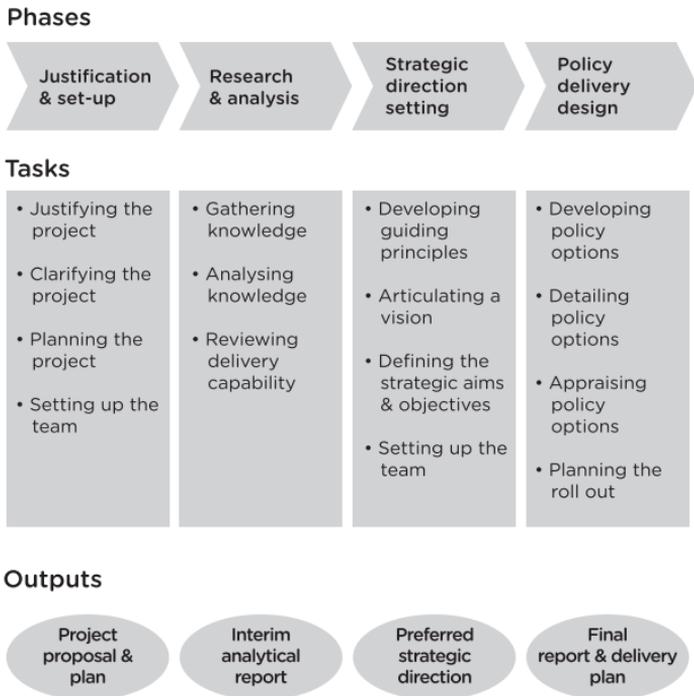
there remains a strong tendency towards reductionism and simplifying wicked, cross-cutting issues. As the case study of climate security illustrated, wicked issues are characterised by there being many different but overlapping frames of reference and perspectives on the issue. But governments often gloss over this pluralism, and ‘fudge the differences’. This takes place across three levels: first, by focusing on a narrow set of perspectives as to what the problem is; second, by settling on a narrow set of goals; and third, by implementing a narrow set of solutions. For example, UK drugs policy is, as we saw, currently dominated by the ‘crime-reduction’ perspective. This in turn leads to a set of goals being developed which are too narrow to fully capture the problems.

One example of this was the (recently discarded) ‘Drugs Harm Index’ (DHI),¹²⁸ which the government used to measure the social harms from drugs, and thereby measure the success of various policies in terms of whether the DHI went up or down, and by how much. A common criticism of the DHI is that it heavily weighted the social costs of drug-related crime in the index; in 2004, 70 per cent of the weighting of the index was accorded to crime.¹²⁹ Therefore drug policy came to be dominated by efforts to reduce drug-related crime. This in turn led to the implementation of ‘solutions’ such as methadone-prescribing and increased enforcement efforts, which were often effective at reducing drug-related crime, but did much less to address the many other problems tied up in the issues of drug misuse.

As well as the reductionism evident in current policy approaches the main vehicle used for simplifying wicked issues is to deny their plurality. This impulse starts ‘upstream’ by failing to acknowledge and accommodate the different perspectives on the issue and its root causes. By prioritising just one perspective the issue appears to be ‘well defined’ – when in fact there is profound disagreement about what is wrong. What is required is not greater ‘consultation’ but serious engagement and involvement of agencies with different perspectives so that no one group hijacks the definition of the issue.

Linear problem managing is also entrenched in many areas of government. Take, for example, the Prime Minister’s Strategy

Figure 8 **The Prime Minister's Strategy Unit's recommended sequence for strategy and policy formulation**

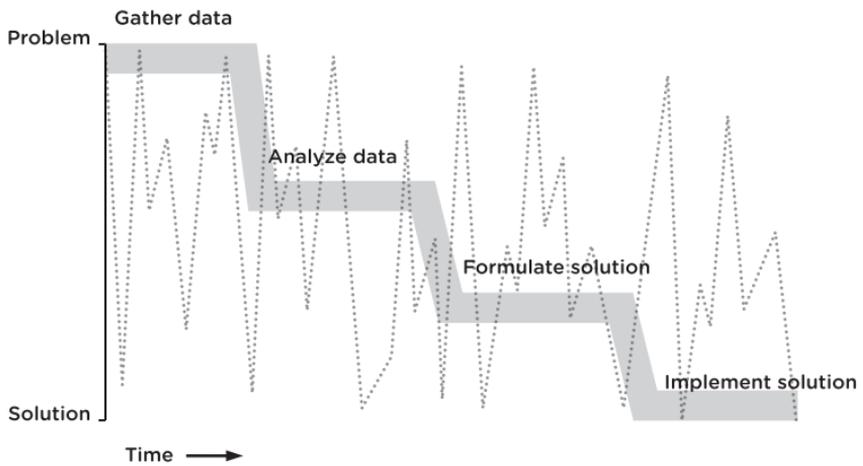


Source: Prime Minister's Strategy Unit, *Strategy Survival Guide*

Unit's recommended sequence for strategy and policy formulation (Figure 8).

The phases of the process proceed linearly: from defining the problem, to gathering knowledge on current approaches to the problem, to developing strategic aims, and then evaluating different policies on how well they meet these aims, ending with the roll-out of the policies judged to be most effective. There is a lot to be said for such an approach to problem managing; it breaks what can seem an overwhelming problem of finding an overarching strategy down to discrete, rational steps. However, when we consider the *wickedness* of many of the issues facing

Figure 9 The linear approach to problem solving



Source: Conklin, *Dialogue Mapping*

government, we might well have some doubts about whether such a linear process *alone* is best suited to the task of addressing wicked issues. The reason for this is that what the problem *is* will be ambiguous and contentious when the problems are wicked. As we consider improvements and reforms, new aspects of the problem will come to light. Each proposed intervention into the system can reveal a deeper understanding of the system. In such cases, the way that we think about the problem will not be linear, but rather a messy ‘zig-zagging’ back and forth between proposed objectives, aims and policies, and the problem definition itself. When dealing with highly complex, wicked issues, such a circular, iterative process of revising our definition of the problem is just what we should expect (Figure 9).

The danger of a linear approach is that this learning process and the accommodation of different perspectives in revising the problem formulation are hindered.

Many ‘linear’ approaches to problem management recommend *defining the problem* as a starting point to move on from. Yet wicked issues tend to be characterised by disagreement

as to what the problem is. So ‘locking down’ the problem into one definition risks excluding and alienating key stakeholders, whose involvement may be key to addressing the wicked issue effectively, given the sprawling scope of wicked issues. An alternative starting point would be to delineate the issue very broadly, even as a loose collection of contradictory concerns, rather than seeking to ‘define the problem’. From here, *improvements* can be sought; that is, changes which a diverse range of stakeholders can agree on despite their disagreements over what the problems are. Instead of searching for solutions to a defined problem, one tries to find a consensus over improvements to a very loosely drawn set of issues.

So, the deliberative framework we are suggesting differs from the ‘standard approach’ (illustrated in Figure 9) in two main ways. First, it understands problem management, and particular the formulation of what the problem is, as a circular rather than linear process. Wicked issues should prompt us to accept and accommodate ambiguity over what the problems are, as well as what are the solutions or improvements to be made. Second, ‘defining the problem’ need not – and, often, *should* not – be the starting point to managing wicked issues. Improvements to a wicked issue can be sought without going through the potentially alienating process of ‘locking down’ the problem. How, then, can such changes in how we think be embedded in policy-making structures? Scenario planning and systems-thinking processes are rich, yet still largely untapped, resources for managing wicked issues and complexity.

Scenario planning, which was discussed in detail in Chapter 3, is one approach to thinking about the big picture and a range of outcomes. Scenario planning helps us to map together unpredictable and interconnected risks in a ‘holistic’ way, in order to explore and prepare for a range of possible futures. Once an outcome is identified, systems thinking allows us to address the issue’s inherent complexity. This is in contrast to the reductionist approach that is most widely used. A holistic approach focuses on relationships and connections.

Almost a decade ago Geoff Mulgan identified seven factors that increased the relevance of systems thinking for policy

makers.¹³⁰ They were:

- the ubiquity of information flows, especially within government itself
- the pressure on social policy to be more holistic
- the growing importance of the environment, especially climate change
- the connectedness of systems
- globalisation
- the need to be able to cope with ambiguity and nonlinearity
- that rational planning can lead to unintended consequences

These factors remain as relevant today as they did in 2001. Conventional policy making, characterised by linearity, reductionism and positivism, is unsophisticated and rarely improves outcomes or identifies solutions – although it is driven by a 24/7 media. Instead politicians and policy makers need to focus on improving the system (be it the climate, the drugs market or a local community blighted by gang crime).

What then do these three case studies tell us about our approach to wicked issues today? First, our approach above is designed to complement, rather than conflict with the conventional policy-making process. Politicians and policy makers need to be more comfortable with uncertainty, rather than adopting mechanistic approaches to issues which assume a deterministic outcome. Second, policy makers are much more comfortable admitting disagreement or ambiguity about what the ‘solutions’ to problems are than about what the problems themselves are. We firmly believe that they need to acknowledge and accommodate such ambiguity and pluralism at the beginning. The repeated failure of policies in many areas of health, social care and crime reduction does not necessarily point to the need for developing new policies; rather it demonstrates a need to adopt a different approach and way of thinking about the issue.

Connecting the dots is an approach premised on learning and adaptation, which demands politicians and policy makers to think holistically, and be prepared to embrace complexity and uncertainty. Society has an insatiable appetite for simplicity and

for solutions. More often than not this *creates* problems rather than *solves* issues. If we accept that the world is complex, uncertain and unpredictable then we have to adapt our current approach to policy making to ensure we are responding to the environment around us rather than to the reality as it is presented to us. This means politicians and policy makers must be honest about the scale and nature of the issues we face. Changing our approach to how we think and manage issues in the long term is desperately needed.

The point is not to change *what* we think, but to change *the way* we think about these issues.

Notes

- 1 Cooper Ramo, *The Age of the Unthinkable*.
- 2 Bentley, *Building Everyday Democracy*.
- 3 BBC News, 'Voters "don't trust politicians"'
- 4 Drugs Policy Alliance Network, 'Reducing harm: treatment and beyond'.
- 5 Ellingwood, 'Extreme drug violence grips Mexico border city'.
- 6 UN Office on Drugs and Crime, *2008 World Drug Report*.
- 7 Medina Mora, 'On the trail of the traffickers'.
- 8 UKDPC, *Re-Focusing Drug-Related Law Enforcement to Address Harms*.
- 9 Rittel and Webber, 'Dilemmas in a general theory of planning'.
- 10 Ackoff, 'The art and science of mess management'.
- 11 Heifetz, *Leadership Without Easy Answers*.
- 12 Schon, *Educating the Reflective Practitioner*.
- 13 Kuhn, *The Structure of Scientific Revolutions*.
- 14 Chapman, J, *System Failure*.
- 15 Commission on Human Security, *Human Security Now*.

- 16 Social Exclusion Unit, *Bringing Britain Together*.
- 17 Davies, *Housing Poverty*.
- 18 Reuter and Stevens, *An Analysis of UK Drug Policy*.
- 19 Ibid.
- 20 UKDPC, *Reducing Drug Use, Reducing Reoffending*.
- 21 Ibid.
- 22 McSweeney, Turnbull and Hough, *Tackling Drug Markets and Distribution Networks in the UK*.
- 23 Ibid.
- 24 Strategy Unit, *Strategy Unit Drugs Report: Phase one*.
- 25 National Statistics, *Statistics on Drug Misuse*. For international comparisons of opiate addiction numbers, see UN Office on Drugs and Crime, *2008 World Drug Report*.
- 26 Gyngell, *The Phoney War on Drugs*.
- 27 'Failed states and failed policies'.
- 28 TDPF, *After the War on Drugs*.
- 29 UN Office on Drugs and Crime, *2008 World Drug Report*.
- 30 Home Office, *Drugs*.
- 31 Ibid.
- 32 Ibid.
- 33 Reuter and Stevens, *An Analysis of UK Drug Policy*.

- 34 Ibid.
- 35 UKDPC, *Reducing Drug Use, Reducing Reoffending*.
- 36 Raynes, 'We are enslaving heroin addicts in state-run chemical gulags'.
- 37 Critchley, 'All the experts admit that we should legalise drugs'.
- 38 Allen, Trace and Klein, *Decriminalisation of Drugs in Portugal*. Cf Greewald, *Drug Decriminalisation in Portugal*.
- 39 Home Office, *Drugs*
- 40 National Statistics, *Statistics on Drug Misuse*.
- 41 McSweeney, Turnbull and Hough, *Tackling Drug Markets and Distribution Networks in the UK*.
- 42 Ibid.
- 43 UKDPC, *Reducing Drug Use, Reducing Reoffending*.
- 44 Quoted in McSweeney, Turnbull and Hough, *Tackling Drug Markets and Distribution Networks in the UK*.
- 45 Roberts, Trace and Klein, *Law Enforcement and Supply Reduction*.
- 46 Gossop, Marsden and Stewart, *NTORS After Five Years (National Treatment Outcome Research Study)*.
- 47 Day, 'Is this the answer?'
- 48 Cf Chapman, *System Failure*.
- 49 <http://news.bbc.co.uk/1/hi/uk/7327702.stm>.
- 50 Travis, 'Home Secretary rejects advice to downgrade ecstasy'.

- 51 Centre for Social Justice, *Addictions*.
- 52 See, for example, TDPF, *After the War on Drugs*.
- 53 Centre for Social Justice, *Addictions*.
- 54 Ibid.
- 55 Heifetz, *Leadership Without Easy Answers*.
- 56 The best known of these is the 'lean systems' approach developed by John Seddon and Vanguard Consulting. See, for example, Seddon, *Systems Thinking in the Public Sector*.
- 57 Mabey, *Systems Thinking and Systems Dynamics in Public Policy Making*.
- 58 Mulgan, 'Systems thinking and the practice of government'.
- 59 Strategy Unit, *Strategy Unit Drugs Report: Phase two*.
- 60 Reuter and Stevens, *An Analysis of UK Drug Policy*.
- 61 See UN Security Council, 5663rd Meeting, www.un.org/News/Press/docs/2007/sc9000.doc.htm.
- 62 Ibid.
- 63 IPCC, *Climate Change 2007*.
- 64 Holmes, B, 'Ocean heat store makes climate change inevitable'.
- 65 World Health Organization, 'Health impact of climate change needs attention'.
- 66 Broder, 'Setting green goals'.

- 67 United Nations, 'World population to increase by 2.6 billion over next 45 years'.
- 68 Mabey, *Delivering Climate Security*.
- 69 CNA, *National Security and the Threat of Climate Change*.
- 70 UNDP, *Human Development Report 2007/2008*.
- 71 Quoted in Borger, 'Scorched'; Moon, 'A climate culprit in Darfur'.
- 72 Smith and Vivekananda, *A Climate of Conflict*.
- 73 See, for example, UNDP, *Human Development Report 2007/2008*.
- 74 Stern, *The Economics of Climate Change*.
- 75 Commission on Human Security, *Human Security Now*.
- 76 Mabey, *Delivering Climate Security*.
- 77 See, for example, CNA, *National Security and the Threat of Climate Change*, authored by a group of retired senior military officers, which discusses the impact climate change may have on potential threats to US national security interests.
- 78 Mabey, *Delivering Climate Security*.
- 79 Barnett, *Security and Climate Change*.
- 80 For arguments warning against overstating the causal links between environmental change and conflicts, see Raleigh and Urda, 'Climate change, demography, environmental degradation, and armed conflict'. Cf Homer-Dixon, *Environment, Scarcity, and Violence* and Dixon, 'Terror in the weather forecast'.
- 81 Asia Society, 'Asia's next challenge'.

- 82 See BBC News, ‘Himalayan glaciers “melting fast”’.
- 83 UNDP, *Human Development Report 2007/2008*.
- 84 Smith and Vivekananda, *A Climate of Conflict*.
- 85 Cf Perri 6, *Holistic Government*, for a similar argument.
- 86 Lydersen, ‘Scientists: pace of climate change exceeds estimates’.
- 87 Mabey, *Delivering Climate Security*.
- 88 Wara, ‘Is it working?’.
- 89 Ibid; Davies, ‘Abuse and incompetence in fight against global warming’.
- 90 Webb, ‘Carbon dioxide prices crash as chaos hits emissions trading’.
- 91 Macalister, ‘Carbon price falls to a new low: decline blamed on profit taking and a collapse in manufacturing’.
- 92 Smith and Vivekananda, *A Climate of Conflict*.
- 93 DCDC, *The DCDC Global Strategic Trends Programme 2007–2036*.
- 94 Wilkinson, ‘Scenarios practices’.
- 95 Ibid.
- 96 Ibid.
- 97 WBGU, *Climate Change as a Security Risk*.
- 98 Teck, ‘Preparing for uncertainty’, at www.dsta.gov.sg/index.php?option=com_content&task=view&id=4168&Itemid=401

- 99 Edwards, *Futures Thinking*; see also Kahane, *Solving Tough Problems*.
- 100 Dawson, *Monitoring Data from the Tackling Gangs Action Programme*.
- 101 Youth Justice Board, *Groups, Gangs and Weapons*.
- 102 See Pitts, *Reluctant Gangsters*.
- 103 Social Exclusion Unit, *Bringing Britain Together*.
- 104 Davies, *Housing Poverty*.
- 105 Sharp, Aldridge and Medina, *Delinquent Youth Groups and Offending Behaviour*; 20 per cent of all core offences, 20 per cent of all violent offences accounted for by members of delinquent youth groups.
- 106 Rittel and Webber, 'Dilemmas in a general theory of planning'.
- 107 Antrobus, *Dying to Belong*.
- 108 Sharp, Aldridge and Medina, *Delinquent Youth Groups and Offending Behaviour*.
- 109 Hallsworth and Young, 'Getting real about gangs'.
- 110 Antrobus, *Dying to Belong*.
- 111 Pitts, *Reluctant Gangsters*.
- 112 Gordon, 'Criminal business organisations, street gangs and "wannabe" groups'.
- 113 Pitts, *Reluctant Gangsters*.

- 114 However, there is some anecdotal evidence that girl membership in gangs is a growing social problem; see O'Hara, 'Hidden menace'.
- 115 Pitts, *Reluctant Gangsters*.
- 116 Thresher, *The Gang*.
- 117 Heale, *One Blood*.
- 118 Huhne, 'Scalpel-sharp intelligence is needed to slash knife crime'.
- 119 Lewisham Community Police Consultive Group, *Stop and Search*.
- 120 Braga, Kennedy, Piehl and Waring, *Reducing Gun Violence*.
- 121 Antrobus, *Dying to Belong*.
- 122 John, 'Manchester's gang busters'.
- 123 Dudman, 'Interview: Stephen Brookes'.
- 124 Conklin, 'Wicked problems and social complexity'.
- 125 Von Hayek, 'The pretence of knowledge'.
- 126 Cooper Ramo, *The Age of the Unthinkable*.
- 127 Cabinet Office, *Modernising Government*.
- 128 MacDonald, *Measuring the Harm from Illegal Drugs Using the Drugs Harm Index*.
- 129 Reuter and Stevens, *An Analysis of UK Drug Policy*.
- 130 Mulgan, 'Systems thinking and the practice of government'.

References

'Failed states and failed policies: how to stop the drug wars', *The Economist*, 5 Mar 2009, at www.economist.com/opinion/displaystory.cfm?story_id=13237193 (accessed 31 Jul 2009).

'On the trail of the traffickers', *The Economist*, 5 Mar 2009, at www.economist.com/displaystory.cfm?story_id=13234157 (accessed 30 Jul 2009).

Ackerman, JT, 'Climate security, national security, and the *Quadrennial Defence Review*: avoiding the perfect storm', *Strategic Studies Quarterly*, Spring 2008, at www.au.af.mil/au/ssq/2008/Spring/ackerman.pdf (accessed 30 Jul 2009).

Ackoff, RL, 'The art and science of mess management', *Interfaces* 11, no 1 (1981).

Allen, L, Trace, M and Klein, A, *Decriminalisation of Drugs in Portugal: A current overview* (London and Oxford: DrugScope and The Beckley Foundation, 2004), www.beckleyfoundation.org/pdf/paper_06.pdf (accessed 30 Jul 2009).

Antrobus, S et al., *Dying to Belong: An in-depth review of street gangs in Britain* (London: Centre for Social Justice, 2009).

Asia Society, 'Asia's next challenge: securing the region's water future', 14 May 2009, at <http://asiasociety.org/policy-politics/task-forces/asias-next-challenge-securing-regions-water-future> (accessed 31 Jul 2009).

Barnett, J, *Security and Climate Change* (Norwich: Tyndall Centre for Climate Change Research, 2001), at www.tyndall.ac.uk/publications/working_papers/wp7.pdf (accessed 31 Jul 2009).

BBC News, 'Himalayan glaciers "melting fast"', at <http://news.bbc.co.uk/1/hi/sci/tech/4346211.stm> (accessed 31 Jul 2009).

BBC News, 'Voters "don't trust politicians"', 18 Mar 2005, at http://news.bbc.co.uk/1/hi/uk_politics/4360597.stm (accessed 30 Jul 2009).

Bentley, T, *Building Everyday Democracy: Why we get the politicians we deserve* (London: Demos, 2005).

Borger, J, 'Scorched', *Guardian*, 28 Apr 2007, at www.guardian.co.uk/environment/2007/apr/28/sudan.climatechange (accessed 30 Jul 2009).

Braga, AA, Kennedy, DM, Piehl, AM and Waring, EJ, *Reducing Gun Violence: the Boston Gun Project's Operation Ceasefire* (Washington, DC: National Institute of Justice, 2001), at www.ojp.usdoj.gov/nij/pubs-sum/188741.htm (accessed 30 Jul 2009).

Broder, JM, 'Setting green goals', *New York Times*, 26 Feb 2009, at www.nytimes.com/2009/02/27/washington/27web-energy.html?scp=1&sq=drilling%20down%20budget%20broder&st=cse (accessed 30 Jul 2009).

Cabinet Office, *Modernising Government*, Cm 4310 (London: The Stationery Office, 1999).

Centre for Social Justice, *Addictions: Towards recovery* (London: Centre for Social Justice, 2008).

Chapman, J, *System Failure* (London: Demos, 2002)

CNA, *National Security and the Threat of Climate Change* (Alexandria, VA: Center for Naval Analyses, 2007).

Commission on Human Security, *Human Security Now: Final report of the Commission on Human Security* (New York: United Nations Publications, 2003).

Conklin, J, 'Wicked problems and social complexity' in Conklin, J, *Dialogue Mapping: Building shared understanding of wicked problems* (Chichester: Wiley, 2005).

Cooper Ramo, J, *The Age of the Unthinkable: Why the new world disorder constantly surprises us and what to do about it* (London: Little, Brown 2009).

Critchley, J, 'All the experts admit that we should legalise drugs', *Independent*, 14 Aug 2008.

Davies, K, *Housing Poverty: From social breakdown to social mobility* (London: Centre for Social Justice, 2008).

Davies, N, 'Abuse and incompetence in fight against global warming', *Guardian*, 2 Jun 2007, www.guardian.co.uk/environment/2007/jun/02/energy.business (accessed 30 Jul 2009).

Dawson, P, *Monitoring Data From the Tackling Gangs Action Programme* (London: Home Office, 2008), available at www.crimereduction.homeoffice.gov.uk/testbed/violentstreet011a.pdf (accessed 6 Aug 2009).

Day, E, 'Is this the answer? Or does methadone stop addicts from addressing the causes of dependency', *Observer*, 16 Nov 2008, at www.guardian.co.uk/society/2008/nov/16/drugs-methadone-rehab-heroin-addiction (accessed 30 Jul 2009).

DCDC, *The DCDC Global Strategic Trends Programme 2007–2036*, 3rd ed (Shrivenham: Development, Concepts and Doctrine Centre, 2006).

Dixon, TF, ‘Terror in the weather forecast’, *New York Times*, 24 Apr 2007.

Drugs Policy Alliance Network, ‘Reducing harm: treatment and beyond’, at www.drugpolicy.org/reducingharm (accessed 30 Jul 2009); Pino Arlacchi, ‘A drug free world – we can do it’, *UN Chronicle*, Summer 2008.

Dudman, J, ‘Interview: Stephen Brookes’, *Public*, 8 Jul 2009, www.guardianpublic.co.uk/stephen-brookes (accessed 30 Jul 2009).

Edwards, C, *Futures Thinking (and how to do it...)* (London: Demos, 2007), available at www.demos.co.uk/files/File/PSI_planning_for_the_future_paper.pdf (accessed 10 Aug 2009).

Ellingwood, K, ‘Extreme drug violence grips Mexico border city’, *Los Angeles Times*, 19 Dec 2008.

Gordon, R, ‘Criminal business organisations, street gangs and “wanna be” groups: a Vancouver perspective’, *Canadian Journal of Criminology and Criminal Justice* 42, no 1 (2000).

Gossop, M, Marsden, J and Stewart, D, *NTORS After Five Years (National Treatment Outcome Research Study): Changes in substance use, health and criminal behaviour in the five years after intake* (London: National Addiction Centre, 2001), at www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4084908 (accessed 30 Jul 2009).

Greewald, G, *Drug Decriminalisation in Portugal: Lessons for creating fair and successful drug policies* (Washington, DC: Cato Institute, April 2009), www.cato.org/pub_display.php?pub_id=10080 (accessed 30 Jul 2009).

Gyngell, K, *The Phoney War on Drugs* (London: Centre for Policy Studies, 2009), at www.cps.org.uk/cps_catalog/the_phoney_war_on_drugs.pdf (accessed 31 Jul 2009).

Hallsworth, S and Young, T, 'Getting real about gangs', *Criminal Justice Matters* 55, no 1, 2004.

Heale, J, *One Blood: Inside Britain's New Street gangs* (London: Simon & Schuster, 2008).

Heifetz, RA, *Leadership Without Easy Answers* (Cambridge, MA: Harvard University Press, 2001).

Holmes, B, 'Ocean heat store makes climate change inevitable', *New Scientist*, 17 Mar 2005, at www.newscientist.com/article/dn7161-ocean-heat-store-makes-climate-change-inevitable.html (accessed 30 Jul 2009).

Home Office, *Drugs: Protecting families and communities* (London: Home Office, 2008).

Homer-Dixon, TF, *Environment, Scarcity, and Violence* (Princeton, NJ: Princeton University Press, 1999).

Huhne, C, 'Scalpel-sharp intelligence is needed to slash knife crime', *The Times*, 30 Mar 2009, at www.timesonline.co.uk/tol/comment/columnists/guest_contributors/article5998477.ece (accessed 30 Jul 2009).

IPCC, *Climate Change 2007: Synthesis Report, Summary for Policy Makers* (Geneva: Intergovernmental Panel on Climate Change, 2007).

John, C, 'Manchester's gang busters', at <http://news.bbc.co.uk/1/hi/uk/3816677.stm> (accessed 30 Jul 2009).

Kahane, A, *Solving Tough Problems: An open way of talking, listening, and creating new realities* (San Francisco, CA: Berrett-Koehler, 2007).

Kuhn, T, *The Structure of Scientific Revolutions* (Chicago, IL: University of Chicago Press, 1962).

Lewisham Community Police Consultive Group, *Stop and Search: The way forward, conference report* (2007), at www.lewisham.gov.uk/NR/rdonlyres/00EA82E2-6F8C-47E5-AD08-Co69D2658BF9/0/PagescfromSTOPANDSEARCH.pdf (accessed 30 Jul 2009).

Lydersen, K, 'Scientists: pace of climate change exceeds estimates', *Washington Post*, 15 Feb 2009, www.washingtonpost.com/wp-dyn/content/article/2009/02/14/AR2009021401757.html?nav=hcmodule (accessed 30 Jul 2009).

Mabey, N, *Delivering Climate Security: International security responses to a climate changed world* (London: Royal United Services Institute, 2008).

Mabey, N, *Systems Thinking and Systems Dynamics in Public Policy Making: Some experiences of the Prime Minister's Strategy Unit* (London: Cabinet Office, 2004).

Macalister, T, 'Carbon price falls to a new low: decline blamed on profit taking and a collapse in manufacturing', *Guardian*, 6 Feb 2009, www.guardian.co.uk/environment/2009/feb/06/carbon-price-record-low (accessed 30 Jul 2009).

MacDonald, Z et al, *Measuring the Harm from Illegal Drugs Using the Drugs Harm Index*, Home Office Online Report 24/05, at www.homeoffice.gov.uk/rds/pdfs05/rdsolr2405.pdf (accessed 31 Jul 2009).

McSweeney, T, Turnbull, PJ and Hough, M, *Tackling Drug Markets and Distribution Networks in the UK* (London: UK Drug Policy Commission, 2008).

Medina Mora, E, 'On the trail of the traffickers' (Mar 2009)

Meier, P and Bond, D, 'Environmental influences on pastoral conflict in the Horn of Africa', Human Security and Climate Change workshop paper, Jun 2005.

Moon, BK, 'A climate culprit in Darfur', *Washington Post*, 16 Jun 2007, at www.washingtonpost.com/wp-dyn/content/article/2007/06/15/AR2007061501857.html (accessed 30 Jul 2009).

Mulgan, F, 'Systems thinking and the practice of government', *Systemist* 23, 2001.

National Statistics, *Statistics on Drug Misuse: England 2007* (London: NHS Information Centre, 2007).

O'Hara, M, 'Hidden menace', *Guardian*, 6 Jun 2007, www.guardian.co.uk/society/2007/jun/06/youthjustice.law (accessed 30 Jul 2009).

Perri 6, *Holistic Government* (London: Demos 1997).

Pitts, J, *Reluctant Gangsters: Youth gangs in Waltham Forest* (2007), at www.walthamforest.gov.uk/reluctant-gangsters.pdf (accessed 30 Jul 2009).

Raleigh, C and Urdal, H, 'Climate change, demography, environmental degradation, and armed conflict' in Woodrow Wilson Center, *New Directions in Demographic Security* (Washington, DC: Woodrow Wilson Institute Environmental Change and Security Program, 2008/09).

Raynes, D, 'We are enslaving heroin addicts in state-run chemical gulags', *Guardian*, 27 Jun 2008.

Reuter, P and Stevens, A, *An Analysis of UK Drug Policy* (London: UK Drug Policy Commission, 2007).

Rittel, H and Webber, M, 'Dilemmas in a general theory of planning', *Policy Sciences* 4 (1973), available at www.uctc.net/mwebber/Rittel+Webber+Dilemmas+General_Theory_of_Planning.pdf (accessed 30 Jul 2009).

Roberts, M, Trace, M and Klein A, *Law Enforcement and Supply Reduction* (Oxford: Beckley Foundation, 2004).

Schon, DA, *Educating the Reflective Practitioner* (San Francisco: Jossey-Bass, 1987).

Seddon, J, *Systems Thinking in the Public Sector* (Axminster: Triarchy Press, 2008).

Sharp, C, Aldridge, J and Medina, J, *Delinquent Youth Groups and Offending Behaviour: Findings from the 2004 Offending, Crime and Justice Survey*, Home Office Online Report 14/06, at www.crimereduction.homeoffice.gov.uk/youth/youth72.htm (accessed 30 Jul 2009).

Smith, D and Vivekananda, J, *A Climate of Conflict: The links between climate change, peace and war* (London: International Alert, 2007).

Social Exclusion Unit, *Bringing Britain Together: A national strategy for neighbourhood renewal*, Cm 4045 (London: Stationery Office, 1998).

Stern, N et al, *The Economics of Climate Change: The Stern review* (Norwich: The Stationery Office, 2006).

Strategy Unit, *Strategy Survival Guide* (London: Strategy Unit, 2004)

Strategy Unit, *Strategy Unit Drugs Report: Phase one – understanding the issues* (London: Strategy Unit, 2003).

Strategy Unit, *Strategy Unit Drugs Report: Phase two – diagnosis and recommendations* (London: Strategy Unit, 2003).

TDPF, *After the War on Drugs: Options for control* (Bristol: Transform Drug Policy Foundation, 2004), at www.tdpf.org.uk/Transform_After_the_War_on_Drugs.pdf (accessed 7 Jun 2009).

TDPF, *After the War on Drugs: Tools for the debate* (Bristol: Transform Drug Policy Foundation, 2008).

Teck, MAJ, 'Preparing for uncertainty: beyond scenario planning', *Journal of the Singapore Armed Forces* 28, no 2 (June 2002), at www.mindef.gov.sg/safti/pointer/back/journals/2002/Vol28_2/4.htm (accessed 29 July 2009).

Thresher, F, *The Gang: A study of 1313 gangs in Chicago* (Chicago, IL: University of Chicago Press, 1927).

Travis, A, 'Home Secretary rejects advice to downgrade ecstasy', *Guardian*, 12 Feb 2009, at www.guardian.co.uk/politics/2009/feb/12/ecstasy-jacqui-smith-drug-laws (accessed 30 Jul 2009).

UKDPC, *Reducing Drug Use, Reducing Reoffending: Are programmes for problem drug-using offenders in the UK supported by the evidence?* (London: UK Drug Policy Commission, 2008).

UKDPC, *Re-Focusing Drug-Related Law Enforcement to Address Harms* (London: UK Drug Policy Commission, 2009).

UN, 'World population to increase by 2.6 billion over next 45 years', United Nations press release, 24 Feb 2005, at www.un.org/News/Press/docs/2005/pop918.doc.htm (accessed 30 Jul 2009).

UN Office on Drugs and Crime, *2008 World Drug Report*, www.unodc.org/documents/wdr/WDR_2008/WDR_2008_eng_web.pdf (accessed 30 Jul 2009).

UN Security Council, 5663rd Meeting, www.un.org/News/Press/docs/2007.sc9000.doc.htm (accessed 30 Jul 2009)

UNDP, *Human Development Report 2007/2008: Fighting climate change: human solidarity in a divided world* (New York: UN Development Program, 2007).

Vandenbroek, P, Goossens, J and Clemens, M, *Tackling Obesities: Future choices – building the obesity systems map* (London: Foresight Centre, 2007).

Von Hayek, FA, 'The pretence of knowledge', lecture to the memory of Alfred Nobel, 11 Dec 1974.

Wara, M, 'Is it working? Is the global carbon market working?', *Nature*, 8 Feb 2007.

WBGU, *Climate Change as a Security Risk* (Berlin: German Advisory Council on Global Change (WBGU), 2007), at www.wbgu.de/wbgu_jg2007_engl.html (accessed 30 Jul 2009).

Webb, T, 'Carbon dioxide prices crash as chaos hits emissions trading', *Independent*, 16 Jan 2005, www.independent.co.uk/news/business/news/carbon-dioxide-prices-crash-as-chaos-hits-emissions-trading-486869.html (accessed 30 Jul 2009).

Wilkinson, A, 'Scenarios practices: in search of theory', *Journal of Futures Studies* 13, no 3, Feb 2009.

World Health Organization, 'Health impact of climate change needs attention', at www.who.int/mediacentre/news/notes/2009/climate_change_20090311/en/index.html (accessed 30 Jul 2009).

Youth Justice Board, *Groups, Gangs and Weapons* (London: Youth Justice Board, 2007).

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Society has an insatiable appetite for simplicity and for solutions. More often than not this creates problems rather than solves them because policymakers become caught up in the narrative of miracle cures for complex problems.

Tough policy issues like the drugs trade, climate change and gang crime cannot be solved by a silver bullet, and yet the rhetoric of contemporary policymakers and politicians suggests that they can. If we accept the world is complex, uncertain and unpredictable then we have to adapt our current approach to policy making.

Connecting the Dots offers an approach premised on learning and adaptation, which demands that politicians and policymakers be prepared to embrace uncertainty and complexity. This pamphlet aims to lay the foundations for a new deliberative framework; one that is suited to dealing with complex issues that are unbounded in time, scope and resources. It examines some of today's most intractable policy issues – illicit drugs in Mexico, London gang crime and climate change – and makes the links that will help policymakers approach such problems in a way that will achieve realistic and lasting change.

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