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## Systems Practice: How to Act in a Climate-Change World

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# Chapter 9

## Four Settings That Constrain Systems Practice

### 9.1 Juggling Practice and Context

The systems practitioner as juggler introduced in Part II was created as an ideal type. One of my main aspirations for the juggler isophor was that through its use I could convey a sense of possibility for engaging in, or further refining your own, systems practice. Underpinning my conception of the isophor is the view that anyone can engage in systems practice and that it is, in general, a competence worth having, not only at a personal level but at a societal level as well. At the end of Part II, I broached the subject of whether it was enough to develop one's juggling (systems practice) in isolation from the contemporary contexts in which systems practice seems needed, yet is not flourishing? Hence, in Part III I first want to explore four pervasive institutional settings which I consider inimical to the flourishing of systems practice and which are also unhelpful in preparing us for our living in a climate changing world (Chapter 9). In each of the remaining three chapters of Part III (Chapters 10–12) I will introduce a way of framing systems practice with potential to address one or more of the inimical settings described in this chapter. I contend that each of these three framings for systems practice has relevance in our current circumstances.<sup>1</sup> My 'framing' choices are not the only viable options for fostering future systems practice but highlight some of the different issues at stake.<sup>2</sup>

When I wrote about a systems practitioner juggling the M-ball in Chapter 8, I described it as involving managing the ongoing juggler – context relationship which I understand as a co-evolutionary dynamic (Chapter 1).<sup>3</sup> In my experience

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<sup>1</sup>I find it difficult to find the right language to express what I mean at this point – I choose 'framings' in the sense that each of the three I have chosen can be understood as incipient social technologies.

<sup>2</sup>For example I could have chosen 'systemic development' as explicated by Bawden [4]. One reason I did not is that material based on the so-called 'Hawkesbury' tradition has been included in Blackmore [7] which, like this book, also doubles as a set book for the OU course 'Managing systemic change: inquiry, action and interaction' (code TU812). Another option could have been the Imagine Methodology (see [6]).

<sup>3</sup>A juggler-context relationship could be understood as exemplifying the structural coupling of an organism with its milieu or environment.

systems practice which only focuses on methods, tools and techniques is ultimately limited in effectiveness. This is particularly so at this historical moment because the environment, or context, is generally not conducive to enacting systems practice. For example, in Chapter 1 I referred to the widespread desire for certainty which, in my view, is inimical to the development and expansion of systems practice capacity. The desire for certainty is both an attitude or an emotion but also a demand that has been built into our institutional arrangements through devices like ‘deliverables’, ‘key performance measures’ or ‘goals’. Thus, to be truly effective in one’s systems practice it may mean that changes have to be made in both practice and context. This is not easy – but it is not something that has to be done alone. Many people now recognise the limitations of our current modes of being and doing. Appreciating this opens up two opportunities: (i) to spot those contexts which favour the initiation and development of systems practice and (ii) networking with others to bring about changes in context so that more conducive conditions for effective systems practice are created.

In my own professional life I have done my fair share of attempting to spot favourable contexts for usefully developing and deploying systems practice.<sup>4</sup> Some have been more successful than others. My overall experience is, however, that working with others to change the context for future systems practice, particularly some of the institutional settings, is urgently needed. In this chapter the four contemporary settings that constrain the emergence of systems practice that I want to address are:

1. The pervasive target mentality that has arisen in many countries and contexts
2. Living in a ‘projectified world’
3. ‘Situation framing’ failure
4. An apartheid of the emotions

My argument put simply is that the proliferation of *targets* and *the project* as social technologies (or institutional arrangements) undermines our collective ability to engage with uncertainty and manage our own co-evolutionary dynamic with the biosphere and with each other. This is exacerbated by an insitutionalised failure to realise that we have choices that can be made as to how to *frame situations*. And that the framing choices we make, or do not make, have consequences. In doing what we do we are also constrained by the institutionalisation of an intellectual apartheid in which *appreciation and understanding of the emotions* is cut off from practical action and daily discourse. In this chapter I outline the basis for my claims and mount arguments about the need for ‘antidotes’.<sup>5</sup>

In Chapter 10, I exemplify my own attempt, assisted by others, to invent a new social technology, systemic inquiry, as an antidote to targets and the projectified world. In Chapter 11, I introduce systemic action research, an approach to research practice in which I and others incorporate understandings of human emotioning. In keeping with the spirit of this book of introducing other voices, Chapter 12 is devoted to ‘systemic intervention’ an approach to practice that makes it clearer how

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<sup>4</sup>As an example see Ison and Armonson [19].

<sup>5</sup>The word antidote means to ‘give as a remedy’ – it is often linked to health matters as in ‘an antidote for the poison’.

different systems methods and techniques might be successfully combined as part of systems practice. All three approaches demand awareness of the choices that can be made in relation to framing of situations.

## 9.2 Managing Systemic Failure – the Travesty of Targets

There are seemingly no shortage of situations in which failing to think and act systemically leads to breakdown or some form of ‘failure’ [14, 15], either of policy or practice. Several commentators have, for example, described the GFC (Global Financial Crisis) as exemplifying systemic failure. By its very nature there are many factors that give rise to any case of systemic failure. However, when choosing to describe situations as if they were systemic failures there has been a tendency, in recent years, for Government Ministers, bureaucrats, CEOs etc. to use the term ‘systemic failure’ as a means to abrogate responsibility. Whilst the claims these people make may have some validity it is, from my perspective, unacceptable for such claims to be made without some accompanying appreciation of how the systemic failure came to happen! By so doing these commentators fail to recognise that they are a participant and the opportunity (or part of the opportunity) to shift the dynamic may reside in their jurisdiction, hence there is an ethical responsibility, i.e. a higher calling to respond! When the explanation ‘systemic failure’ is not accompanied by a commitment and openness to inquiry into the circumstances of the ‘failure’ then an abrogation of responsibility occurs. Responsibility is denied when those involved are not open to learning and change.<sup>6</sup> Otherwise the claim to systemic failure is no better than an attempt to explain something away through a sort of magic!

In my first example I want to address the failings of what some have called the ‘targets culture’, a culture that has become endemic in the British New Labour government as well as widespread in other areas of government and corporate life. I have come to understand this situation as exemplifying the privileging of systematic approaches over systemic, sometimes at considerable social cost. Take for example the case described by Simon Caulkin [8] in Reading 7.<sup>7</sup>

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<sup>6</sup>Russell Ackoff [1] argues that we cannot learn from doing anything right. In exploring why organisations fail to adopt systems thinking he points to a general phenomenon – that of failing to embrace and learn from mistakes. He cites August Busch III, then CEO of Anheuser Busch Companies, who told his assembled vice presidents, “if you didn’t make a serious mistake last year you probably didn’t do your job because you didn’t try anything new. There is nothing wrong in making a mistake, but if you ever make the same mistake twice you probably won’t be here the next year”. Of particular concern is organisations and individuals who transfer responsibility for their mistakes to others thus avoiding learning.

<sup>7</sup>This reading concerns situations connected with the UK’s National Health Service (NHS), a very large and complex organisation. MRSA, or *methicillin-resistant Staphylococcus aureus*, is a bacterium responsible for difficult-to-treat infections in humans (see [http://en.wikipedia.org/wiki/Methicillin-resistant\\_Staphylococcus\\_aureus](http://en.wikipedia.org/wiki/Methicillin-resistant_Staphylococcus_aureus)). Baby P, (also known as “Child A” and “Baby Peter”) was a 17-month old boy who died in London in 2007 ‘after suffering more than 50 injuries over an 8-month period, during which he was repeatedly seen by social services’ (Source: [http://en.wikipedia.org/wiki/Death\\_of\\_Baby\\_P](http://en.wikipedia.org/wiki/Death_of_Baby_P)).

## Reading 7

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### **This isn't an abstract problem. Targets can kill.**

**Simon Caulkin<sup>8</sup>**

MRSA, Baby P, now Stafford hospital. The Health Commission's finding last week that pursuing targets to the detriment of patient care may have caused the deaths of 400 people at Stafford between 2005 and 2008 simply confirms what we already know. Put abstractly, targets distort judgment, disenfranchise professionals and wreck morale. Put concretely, in services where lives are at stake – as in the NHS or child protection – targets kill.

There is no need for an inquiry into the conduct of managers of Mid Staffordshire NHS Foundation Trust, as promised by Alan Johnson, the health secretary, because contrary to official pronouncements, it is exceptional only in the degree and gravity of its consequences. How much more evidence do we need?

Stafford may be an extreme case; but even where targets don't kill, they have similarly destructive effects right across the public sector. Targets make organisations stupid. Because they are a simplistic response to a complex issue, they have unintended and unwelcome consequences – often, as with MRSA or Stafford, that something essential but unspecified doesn't get done. So every target generates others to counter the perverse results of the first one. But then the system becomes unmanageable. The day the Stafford story broke last week, the Daily Telegraph ran the headline: "Whitehall targets damaged us, says Met chief", under which Sir Paul Stephenson complained that the targets regime produced a police culture in which everything was a priority.

Target-driven organisations are institutionally witless because they face the wrong way: towards ministers and target-setters, not customers or citizens. Accusing them of neglecting customers to focus on targets, as a report on Network Rail did just two weeks ago, is like berating cats for eating small birds. That's what they do. Just as inevitable is the spawning of ballooning bureaucracies to track performance and report it to inspectorates that administer what feels to teachers, doctors and social workers increasingly like a reign of fear.

If people experience services run on these lines as fragmented, bureaucratic and impersonal, that's not surprising, since that's what they are set up to be. Paul Hodgkin, the Sheffield GP who created NHS feedback website Patient Opinion ([www.patientopinion.org.uk](http://www.patientopinion.org.uk)) notes that the health service has

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<sup>8</sup><http://www.guardian.co.uk/business/2009/mar/22/policy>

(continued)

**Reading 7** (continued)

been engineered to deliver abstract meta-goals such as four-hour waiting times in A&E and halving MRSA – which it does, sort of – but not individual care, which is what people actually experience. Consequently, even when targets are met, citizens detect no improvement. Hence the desperate and depressing ministerial calls for, in effect, new targets to make NHS staff show compassion and teachers teach interesting lessons.

Hodgkin is right: the system is back to front. Instead of force-fitting services to arbitrary targets (how comforting is hitting the MRSA target to the 50% who will still get it?), the place to start is determining what people want and then redesigning the work to meet it.

Local councils, police units and housing associations that have had the courage to ignore official guidance and adopt such a course routinely produce results that make a mockery of official targets – benefits calculated and paid in a week rather than two months, planning decisions delivered in 28 days, all housing repairs done when people want them. Counterintuitively, improving services in this way makes them cheaper, since it removes many centrally imposed activities that people don't want. Sadly, however, the potential benefits are rarely reaped in full because of the continuing need to tick bureaucratic boxes; and in the current climate of fear, chief executives are loath to boast of success built on a philosophy running directly counter to Whitehall orthodoxy.

The current target-, computer- and inspection-dominated regime for public services is inflexible, wasteful and harmful. But don't take my word for it: in the current issue of *Academy of Management Perspectives*, a heavy-weight US journal, four professors charge that the benefits of goal-setting (i.e. targets) are greatly over-sold and the side-effects equally underestimated. Goal-setting gone wild, say the professors, contributed both to Enron and the present sub-prime disasters. Instead of being dispensed over the counter, targets should be treated “as a prescription-strength medication that requires careful dosing, consideration of harmful side effects, and close supervision”.

They even propose a health warning: “Goals may cause systematic problems in organisations due to narrowed focus, increased risk-taking, unethical behaviour, inhibited learning, decreased co-operation, and decreased intrinsic motivation.” As a glance at Stafford hospital would tell them, that's not the half of it.

Caulkin, S., ‘This isn't an abstract problem. Targets can kill’. *The Observer*, Sunday 22 March 2009, Copyright Guardian News & Media Ltd 2009.

Simon Caulkin has been one of the leading critics of the UK government's target's mentality. From this article it is easy to appreciate the distorting effects of the woolly thinking associated with imposing common targets across diverse contexts and the ill-informed use of 'goal-oriented' thinking. This example is an archetypical, though shameful, case of dropping all of the balls of concern to a systems practitioner as juggler! It is in such situations where systemic inquiry can find a place – as an institutionalised form of practice – particularly as a replacement for, or complement to regulation, policy prescriptions (blueprints) and targets. As I outline in Chapter 10 traditional policy instruments are, in a climate changing world, increasingly blunt or totally inappropriate instruments because, once formulated, they generally:

1. Fail to be institutionalised in an adaptive manner that is open to revision as the situation evolves
2. Are easy to develop but much more difficult and expensive to monitor and police (i.e. the effectiveness of many regulations is often not known until after some form of breakdown in the situation where the regulations were designed to operate)<sup>9</sup>
3. Preclude context sensitive local design and the establishment of more effective measures of performance of a policy or practice in relation to a situation or issue of concern

How to institutionalise adaptive practice is a key but by no means simple issue because of the propensity for enacting institutions in manners that tend to simplify, or at least focus, their reward feedback on whatever is easy to “measure fairly and consistently” whether or not that is relevant to the work! Together these factors militate against the fostering and development of capability for systemic and adaptive governance.

Once engaged in a systemic inquiry process other factors begin to reveal themselves. Are, for example, the failures described in Reading 7 symptomatic of an even bigger issue? Goals or targets imposed in the way that Caulkin critiques, whether knowingly or not, perpetuate a command and control mentality. In many ways Caulkin's article epitomises the failure of the pervasive hierarchical model of getting things done in our organisational life as described by Gerard Fairtlough [11] – see also Chapter 8. With these distinctions in mind what is it that New Labour has sought to control? The espoused aim was to control the phenomena to which the targets were aimed, e.g. hospital waiting lists. However was this really the case?

Some other commentators have seen the 'targets mentality' from another perspective, claiming that:<sup>10</sup>

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<sup>9</sup>And of course the monitoring and policing becomes a self conserving praxis... which blinds people to the indicators that mean something!

<sup>10</sup>Source: The ultimate turnaround from Labour, the dying Government. By abandoning targets, Labour is admitting the depth of its failure, says Philip Johnston [22].

Why were targets introduced? The Government [UK, Labour] would have you believe it was to drive up standards; but in reality they were a means of showing that Labour “cared”. They were a political device. Whenever ministers were challenged about high levels of offending or poor levels of literacy they could say: “But we have a target to reduce it/increase it/scrap it, so we must be good.” Targets were ostensibly introduced to hold the Government to account, but were used as a means of deflecting criticism.

If such a situation could be shown to be the case (good ethnographic research would probably be needed) then this situation might be better understood as a product of Caulkin’s observation that increasingly many government ‘organisations are institutionally witless because they face the wrong way: towards ministers and target-setters, not customers or citizens’. Elsewhere I have observed that it may be useless railing against politicians for what they do or do not do because they themselves are trapped in a structure determined context in which it is really only possible to do what they do.<sup>11</sup>



**Illustration 9.1**

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<sup>11</sup> A structure determined system is a delicate concept to get across. It should not be confused with causal determinism or pre-determinism. A system (or thing) can only do that which it has an appropriate structure for. I can’t fly, no matter how you poke me. Thus something’s structure determines what is possible for it.



Geoffrey Vickers [39, 40], using an analogy of the lobster pot, speaks of traps in our thinking and doing that are of our own making. The concept of a trap has been found useful by generations of OU systems students because it invites a practice of thinking about traps in our own being as well as in the social technologies we have invented. Western style democracy in its current bureaucratic and administrative form may be such a trap but my second concern is with something that is less obvious but none-the-less pervasive in its effects.

## 9.3 The Consequences of Living in a Projectified World

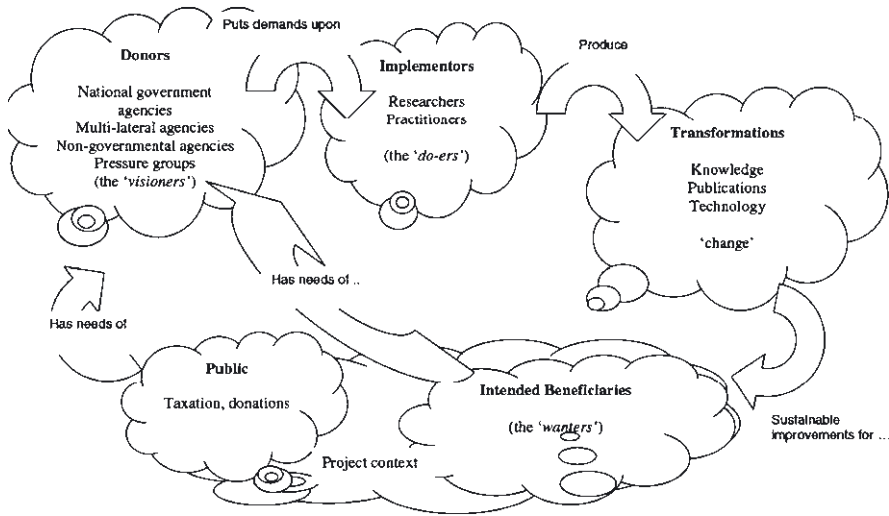
### 9.3.1 *Projectification*

As soon as you think about it, it becomes patently obvious that we live in a projectified world. I can hardly remember a time when a project was not part of what I did – whether at school or throughout my professional life. The word project has its origins in the Latin *projectum*, ‘something thrown forth’ from which the current meaning of a plan, draft or scheme arises. It would seem that the meaning, now common across the world, of a project as a special assignment carried out by a person, initially a student, but now almost anyone, is first recorded in 1916 [2]. From that beginning I am not really sure how we came to live with projects in the manner that led Simon Bell and Stephen Morse [5] to speak of a ‘projectified-world order’. Perhaps mass education carried forth the project into all walks of life? Whatever this history, my experience suggests it is no longer tenable in a climate changing world to have almost all that we do ‘framed’ by our invention of ‘the project’.<sup>12</sup>

Bell and Morse [6] describe a project as ‘defined activities carried out by defined people with a defined end point in mind at a defined cost and over a defined period of time’ (p. 97). They go on to outline how ‘projects are popular with those responsible for spending money’ and ‘embrace a targeted set of activities with a clear aim (and hence cost), and hence accountability [that] can be maximized.’ This allows, they argue, limited time-horizons for spending the budget and the achievement of targets allow a long-term commitment to be circumvented or even negated altogether. This ‘fits neatly into the short-term time-frames that politicians inhabit’ they claim (p. 98).

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<sup>12</sup>Take this book for instance – for me it is really an exercise in reification of an ongoing inquiry into what it means to be an effective systems practitioner. However my framing does not hold for staff in my University or at the publisher who see it as a project – with all that that entails re deadlines etc.



**Fig. 9.1** The project process from the perspective of systems practitioners involved in doing sustainable development projects (Source: Bell and Morse [6] Figure 1, p. 98)

It is possible to capture the double sense of the meaning of *project* if one thinks of what we do when we *project our projects onto the world*. I have this image of shelves upon shelves, and now electronic files galore, of projects that have been labelled 'finished' and thus are hardly ever engaged with again. When I express my concerns in this way I imagine a grotesque expansion of the E-ball (discussed in Chapter 5) to the extent that our collective capacity to juggle the rest of the balls effectively and systemically is lost. In making this connection to the E-ball I am pointing out how the *project* has become one of the most pervasive of social technologies.

The contemporary project process has been characterised by Bell and Morse [6] in the form shown in Fig. 9.1. These authors describe Fig. 9.1 as the 'project ideal'. They note that 'while the diagram is circular in the sense that what the projects set out to do should have an impact in wider society, and society provides the funding, the circularity does not necessarily imply a continuation or longevity of the benefits that should accrue from the projects' existence' (p. 98). They express my own concerns and experience when they go on to say that their special concern is that there is rarely any lasting benefit to the situation from doing of the project. They observe that 'the projectified world order significantly fails to meet long-term needs and goals' (ibid).

Bell and Morse's experiences arise in the domain of sustainable development practice, primarily through 'development assistance' in poorer countries. What of other domains?

### 9.3.2 *Project Management*

Along with projectification of the world a new specialised discipline has also arisen, namely that of ‘project management.’ Particular understandings of what a project is and how it should be managed have become reified within the mainstream or conventional ‘project management’ community (Box 9.1). Now, some of the traditional approaches to project management are coming under critique in a number of areas. Winter and Checkland [43] for instance argue that conventional project management theory only represents a particular and limited image of project management practice rather than comprising an all-encompassing theory as many of the college textbooks seem to imply. They argue that in the mainstream literature of the project management community the term ‘project’ ‘is usually a reference to some product, system or facility, etc. that needs to be created, engineered or improved’ with this need ‘or requirement for a new or a changed product being defined at the start.’ Although this need may only be expressed in broad terms nonetheless it is assumed as known or ‘given’ from the outset.’

In their work, Winter and Checkland [43] seek to ‘show that conventional project management theory embodies a particular way of seeing the practice, which is, simultaneously, a way of not seeing it.’ For them this way of “seeing and not seeing is the paradigm of ‘hard’ systems thinking”, which ‘has been a prime influence on the development of project management ideas and practices over the last 40 years’ (p. 188). The main characteristics of the ‘hard systems’ paradigm as reflected in the material in Box 9.1 are [43]:

#### **Box 9.1** Examples of the ‘Mainstream’ Understanding of ‘Projects’ [43]

A project involves a group of people working to complete a particular end product, or to achieve a specific result, by a specified date, within a specified budget and to meet a specified standard of performance (quality) [23].

[A project is] an endeavour in which human, material and financial resources are organised in a novel way, to undertake a unique scope of work, of given specification, within constraints of cost and time, so as to achieve beneficial change defined by quantitative and qualitative objectives [38].

A project is a human activity that achieves a clear objective against a time scale [30].

A project is an endeavour to accomplish a specific objective through a unique set of interrelated tasks.... A project has a well-defined objective – an expected result or product. The objective of a project is usually defined in terms of scope, schedule, and cost [17].

- There is a clear objective or goal to be achieved, within some specified scope, schedule and cost
- Achieving the goal – the process dimension – is the primary task of project management
- The project is carried out through a sequence of stages as defined by the project life cycle, involving the application of various techniques such as critical path analysis, product-based planning and work breakdown structures<sup>13</sup>

The main thrust of this critique is that historically project management has been built on particular theoretical assumptions that have been found wanting or are no longer valid. In Winter and Checkland's [43] case they point an accusatory finger at hard systems thinking and approaches. In the language of earlier chapters the culprit is the overreliance on systematic, rather than systemic thinking. However, they are also at pains to say that both 'paradigms' are required. What is principally missing, they argue, is lack of awareness that the particular image of mainstream project management practice represents that conventional wisdom which the practice has itself generated. In turn the understandings upon which these practices have evolved have been reified into social technologies known as 'good project management'. In 'Images of Projects', Winter and Szczepanek [44] reject "outright the idea of a one 'best way' to view all projects and also the idea of following a prescriptive approach". They 'encourage a more pragmatic and reflective approach, based on deliberately seeing projects from multiple perspectives.'

I have my own experiences of project management practices that are more systematic than systemic and unsuited to the context in which they were employed. A particular example involved understandings that have been reified into project management procedures known as PRINCE2 as sponsored by the UK government. The acronym PRINCE stands for Projects IN Controlled Environments. The first PRINCE standard was published in 1990 and whilst it is subject to Crown Copyright it is available in the public domain. PRINCE2 was released in 1996 for use in more than just IT (information technology) projects [12]. My particular experience was based in the Environment Agency of England & Wales (EA), a large statutory body with about 12,000 employees, responsible for most aspects of environmental monitoring, regulation and compliance in England and Wales. At the time we were engaged in research related to the implementation of the European Water Framework Directive (WFD), an ambitious policy designed to improve the quality and ecological status of Europe's water in river basins over the period 2000 to 2027.

PRINCE2 was mandated for use within the UK civil service on projects above a certain size. PRINCE2, it was claimed, was needed in order to manage

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<sup>13</sup>Winter and Checkland [43] also say that this core image of practice can also be seen in many of the college textbooks on project management and in many of the official sources of information about project management. It can also be seen operating in project management education and training programmes, and is generally the dominant image in much of the literature on project management, both academic and popular.

the complexity of the structure, including the complex inter-dependencies between individual projects and work packages that were employed in implementing the WFD. The establishment of these project management procedures was done with good intentions; without them WFD implementation would undoubtedly have come adrift very rapidly. In practice, however, this approach has not proved to be satisfactory. It was not satisfactory because, in implementation, PRINCE2 led to the systematic fragmentation of a very large and complex activity with the result that all involved lost sight of the whole. In addition no one was responsible for managing the connectivity between the different elements. On entering the organisation we encountered isolated individuals in seemingly discrete projects lacking in awareness of overall purpose and how what they were doing related to others.

The understandings on which PRINCE-type methods are built perpetuate and reproduce practices that privilege a ‘technical rationality’. This rationality has been pervasive in organisations such as the EA, responsible for water policy and management. As I will explain below this rationality is not well suited to managing in situations of complexity and uncertainty [10, 20].

In other words we have arrived at a point where those who do project managing are not fully aware of what they do when they do what they do! Ironically this is largely due to the reification or projectification of project management itself. This has major implications for governance and, ultimately, how we respond in a climate change world.

### 9.3.3 *Governance and the ‘Project State’*

In addition to the understandings of projects outlined in the previous two sections some practitioners conceive of projects as ‘temporary organisations’, though often embedded in or between permanent organisations. From the perspective of those who are trying to understand projects in a wider social setting, project proliferation is seen as a consequence of the shift from government to governance. It is argued [42] that ‘the project has become a post-modern symbol of adaptability and contingency – it is thought of as a superior way of reacting to unforeseen and non-standard situations’. In part, it is argued, this has happened by opening up who participates in projects. Others argue it has arisen because of the moral weakness of the state.

Governance is a much broader idea than management, it encompasses the totality of mechanisms and instruments available for influencing social and organisational change, especially adaptation, in certain directions [13]. Sjöblom [35] claims that the shift from government, which many regard as associated with top down or command and control practices, to governance is ‘one of the megatrends in industrialised societies’ (p. 9). Governance, as a concept, has of course the same origins as *cybernetics* (meaning steersman or helmsman). In practice it means adjusting to circumstances. Perhaps more significantly in the context of a climate-changing world the question becomes: how do we as a species chart a

course within a rapidly changing co-evolutionary dynamic given we now live in a projectified world?<sup>14</sup>

Within these different discourses about the emergence of a ‘projectified world’ there are competing claims as to what a project enables or not. Thus some see them positively as a means to be more open to context – ‘as mechanisms for joined-up governance with a horizontal approach to governing and organizing’ [29, p. 67]. Yet others see them as part of a failed ‘rationalistic dream’ which creates a pervasive normative pressure on what it is we do under the rubric of ‘a project’ [35].<sup>15</sup> At its worst the project state has come to represent an ‘unholy marriage between bureaucratic and managerialist rationalities, while pretending to privilege citizen engagement and direct participation in governance’ [18].

What seems clear to me is that the pervasiveness of systematic thinking and practices associated with goals, targets and projects, what Winter and Checkland [43] call the ‘hard systems paradigm’, does not augur well for adapting in a climate change world. We need to invent something better.<sup>16</sup>

In the next section I offer an explanation as to why targets and projects have proliferated in society – that through the understandings and practices we have reified we collectively fail to realise that we have choices that can be made about the nature of situations.

## 9.4 Making Choices About Framing a Situation<sup>17</sup>

From the outset in this section I want to make it clear that in drawing attention to the choices we can make for framing situations I am not advocating engaging with situations with an *a priori* set of possible choices in mind. My primary concern is

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<sup>14</sup>As noted by Bateson [3] systems and cybernetics ‘can be a way of looking that cuts across fields, linking art and science and allowing us to move from a single organism to an ecosystem, from a forest to a university or a corporation, to recognise the essential recurrent patterns before taking action’.

<sup>15</sup>For further background see papers associated with the seminar ‘Theory and Practice of Governance in the Project State’, the Swedish School of Social Science at the University of Helsinki, October 2003.

<sup>16</sup>Winter and Checkland [43] propose the use of SSM as an alternative model for project conception and managing. They argue (p. 92) for: ‘for a broader image of project management practice than that which has been dominant in the past.’ They advocate a new perspective “with a focus on the process of ‘managing’, rather than the life-cycle process of ‘project management’, this new perspective seeks to enrich and enlarge the traditional life-cycle image of project management. It also offers to provide a new foundation for future research in the project management field.”

<sup>17</sup>The work described in this section comes from a number of research situations, mainly in Europe in the period 2000–2009. A major component was work with the Environment Agency of England & Wales (EA) associated with implementation of the European Water Framework Directive. Over this period what I would once have referred to as ‘research projects’ or programmes were purposefully framed as systemic inquiries, although not all of them in contractual terms.

to privilege experience, understood as that which we distinguish in relation to ourselves, in a process in which one is as open to the circumstances as possible. This, as I have outlined in Chapter 5, involves attempting to be aware of the traditions of understanding out of which we think and act.

In the recent past my own concerns have been with situations associated with water, river and catchment managing. In recent history understanding and managing of rivers has been heavily influenced by hydrologists, engineers and physical geographers. In the past a river or a water catchment was rarely understood as if it were a human activity system. But having made this shift a river catchment or watershed exemplifies what some describe as a multi-stakeholder situation. But it is a multi-stakeholder situation of a particular type in that the connectivity, or lack of it, between humans and the biophysical dimensions are of critical importance. Thus some would choose to describe a catchment as a coupled socio-ecological system.<sup>18</sup> For those who are not aware there is a growing global water crisis that is manifest in similar yet specific ways in almost all countries. It is likely that in many areas climate change will make the current situation worse. Both globally and locally these situations have many or all the features of situations that others have described as wicked problems, messes or complex adaptive systems as described in Chapter 6.<sup>19</sup> Aware of this history and drawing on a literature associated with the ‘framing’ of such situations as ‘resource dilemmas’ [20, 34, 37] my colleagues and I now choose to characterise river catchments in terms depicted in Fig. 9.2 [36]. The figure draws attention to how we have selected a new lens with which to engage (understand) these situations. I elaborate on the terms that make up our new lens in Box 9.2.

In my experience there are many situations that could be usefully framed in the terms we now employ in relation to water catchments (Box 9.2). By useful I mean making them amenable to some form of action that leads to systemic improvement. My use of this framing is an example of how I juggle the E-ball. I do so with an appreciation of the history of the use of the terms ‘interdependencies’, ‘complexity’, ‘uncertainty’, ‘controversy’ and ‘multiple stakeholding and/or perspectives’ (Box 9.2) as well as that of ‘messes’, ‘wicked problems’ and the ‘swamp of real life issues’ as discussed in Chapter 6.

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<sup>18</sup>In many ways a river catchment is no different to any business or other form of human activity in that they are, knowingly or not, coupled with a biophysical environment – it is just that in most circles this is not appreciated and all too often the environment is treated as an externality.

<sup>19</sup>Roux et al. [31] for example refer to social-ecological systems, as well as organisations, as complex systems. They go on to say that ‘complex does not mean complicated. An engine is complicated. It is also predictable, at least by those who put it together. A complex system has particular properties that make it inherently unpredictable. Being able to recognise a system as complex allows one to better understand that system at least to the extent that one understands why, in a general sense it is the way it is. It is the unpredictability of such systems that has fundamental implications for their management.’



**Fig. 9.2** Choices that can be made about the nature of a situation such as water governance and catchment management situations (Adapted from SLIM 2004 [36])

**Box 9.2** Characterising Natural Resource Issues as Resource Dilemmas

**1. Interdependencies [36]**

The use of natural resources through one type of human activity affects ecological processes in ways that interact with other people’s uses of natural resources, both across geographic and ecosystem boundaries and time scales. Integrated Catchment Managing and the sustainable use of water, for example, address interdependencies among:

Human activities, relative to:

- Their qualitative and quantitative effect on water
- Their water-related needs

Linked geographical areas:

- Such as upstream areas, lowland wetlands and estuaries
- Aquatic and terrestrial ecosystems

**2. Complexity**

Natural resources are under the influence of a complex mix of enmeshed natural, technical and social processes, including changes in public policy, organisations and a diversity of stakeholders, each with their own perceptions.

(continued)



### **Box 9.2** (continued)

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When considering water as a resource for human uses as well as a part of nature, we are compelled to make the link between ecology and societal processes such as technological development, the market, public policies and interpersonal relations. Integrated Catchment Managing and the sustainable use of water operate within a set of interlinked and assorted elements that create a high level of complexity.

#### **3. Uncertainty**

The complexity of such circumstances makes them impossible to explain comprehensively and accurately, and the effects of proposed solutions cannot be forecast because of uncertainties. The realms of uncertainties are also diverse: Technical and ecological, regarding:

- The relationship between human activities and ecological processes
- Fragmented and sector-specific technical and scientific knowledge

Socio-economic, relative to:

- Market and consumer trends
- Changes in social demands
- The emergence of new sorts of crises
- The proliferation of institutional arrangements

Political, with respect to the increasing diversity and number of:

- Public policies generating contradictions
- Decision-making levels and organisations implementing these policies

#### **4. Controversy**

Uncertainty and interdependencies result in different perceptions and lasting disagreements on which issue is to be addressed. Controversies emerge from questioning the existence of problems, their origins, how cause-and-effect relations are understood, how they should be managed and by whom.

#### **5. Multiple Stakeholders and/or Perspectives**

In situations understood as ‘resource dilemmas’ there is likely to be a mix of people, each with multiple, partial views if a situation; some will have strong stakes (stakeholding) in what is at issue in the situation, others’ stakes will be less well developed even though the implications or potential impacts may be equally great for both groups. Thus the nature of what is at issue and what constitutes an improvement is likely to be contested.

As I outlined earlier (Section 8.6), in my recent research with colleagues on systemic and adaptive governance of natural resource situations we have made a choice to understand sustainable and regenerated water catchments as the emergent property of social processes and not the intrinsic property of an ecosystem [20]. That is, desirable water catchment properties arise out of interaction among multiple, inter-dependent, stakeholders in the water catchment as these stakeholders engage in issue formulation and monitoring, negotiation, conflict resolution, learning, agreement, creating and maintaining public goods, concertation of action. When it occurs in a complex natural resource arena we describe this overall set of interactions as *social learning* [37]. I will say more about this in Chapter 10. We have made a choice to perceive ‘ecosystems’ as bounded by the conceptualisations and judgments of humans as are agreements to what constitutes an improvement. This contrasts with the mainstream position wherein ecosystems are regarded as having an existence of their own [9].<sup>20</sup>

Making a choice about a situation that appropriately acknowledges complexity and uncertainty is a key starting point for managing (juggling the M-ball). Failure to account for complexity and uncertainty leads, all too often, to treating situations, whether consciously, or unconsciously, as difficulties, ‘tame problems’ or amenable, only, to scientific explanation.<sup>21</sup>

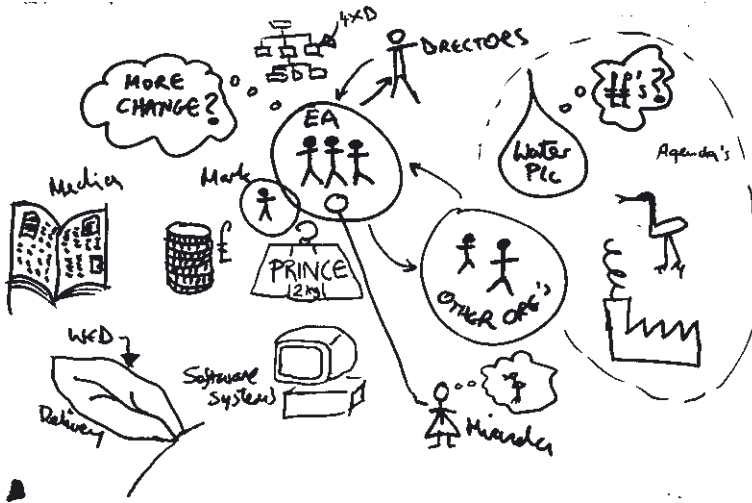
As I have outlined we have choices that can be made as to how to engage with situations. The particular framing we chose in our work on river catchment managing is one of many choices that could be made.

The use of particular tools and techniques are important in preventing premature boundary closure and thus in remaining emotionally and conceptually open to the circumstances. Such an approach also helps to avoid premature framing of situations. For example I have used metaphor analysis (as described

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<sup>20</sup>Many scientists and non-scientists alike hold the view that “a natural system is a whole created by nature”. These few simple words represent ideas that have been the subject of many books. In the way in which I experience use of these terms I understand the users to reify “nature” (as if nature existed) and system “as in the world”.

<sup>21</sup>There is a generic problem of privileging science, in the sense that science normally treats what it studies as a discrete, separate-from-humans object i.e., as “objective”. This led Maturana [25] to characterise his concerns on the privileging of particular aspects of science and technology in the following terms: “In our modern Western culture we speak of science and technology as sources of human well-being. However, usually it is not human well-being that moves us to value science and technology, but rather, the possibilities of domination, of control over nature, and of unlimited wealth that they seem to offer... We speak of progress in science and technology in terms of domination and control, and not in terms of understanding and responsible coexistence.... What science and the training to be a scientist does not provide us with is wisdom.... Wisdom breeds in the respect for the others, in the recognition that power arises through submission and loss of dignity, in the recognition that love is the emotion that constitutes social coexistence, honesty and trustfulness and in the recognition that the world that we live is always, and unavoidably so, our doing.”



**Fig. 9.3** A rich picture generated as part of a two person dialogue in a situation where traditional project managing was not working

in Reading 5 in Chapter 7). This can be a particularly insightful approach when dealing with published reports and policy documents or professionals immersed in particular lineages with strong organising and foundational metaphors. Other techniques involve simple shifts of understanding and language – such as a move away from use of ‘the problem’, or ‘problem situation’ to ‘the situation of concern’.

In SSM (soft systems methodology), Checkland and co-workers advocate the use of ‘rich pictures’ a particular form of diagramming as a means of engaging with situations of concern. As a form of diagram they have particular advantages (see Table 6.1). Generating rich pictures like Fig. 9.3 can be used to mediate conversations between pairs or small groups and in the process surface multiple perspectives, deeply held views and underlying conceptions and emotions. Surfacing this material – i.e. bringing it into conversation is a useful precursor to inviting a shift in reframing of a situation. Underlying emotions are often significant, but rarely admitted in conversation. I will discuss this in the next section.

## 9.5 Breaking Down an Apartheid of the Emotions

Being open to one’s circumstances is a matter of emotion more than anything else. The underlying emotional dynamics in a situation can be understood as what makes possible, or not, the emergence of new distinctions and thus experiences.

This phenomenon, perhaps more than any other, opens up the spaces for change in what we as humans do.<sup>22</sup> I exemplified the type of emotional apartheid that concerns me in Section 8.2.1. It has its apotheosis of course in academic discourse and practice.<sup>23</sup>

As noted by Russell and Ison [32] the proposition that our experience and subsequent action is shaped by a particular emotion is not a new one in experimental psychology. Beginning in the late 1800s William James [21] suggested that “my experience is what I agree to attend to” (p. 402). Research by Arne Öhman and his colleagues (see Öhman [28], for a review of the relevant experimental studies) clearly shows how attention is controlled by the currently activated emotional system, that emotion appears to drive attention, and that emotions are assumed to be functionally shaped by evolution. Öhman presents evidence that emotions, particularly those of fear and anxiety, can be aroused by events that are “outside the spotlight of conscious attention” (p. 265). The finding that an emotional change can be elicited by a pre-attentive, automatic analysis of a stimulus, with an absence of any conscious recognition of that stimulus, is particularly relevant to any model of conversational behaviour.

Following Maturana et al. [26] emotioning is a process that takes place in a relational flow. This involves both behaviour and a body with a responsive physiology that enables changing behaviour. Thus, ‘a change of emotion is a change of body, including the brain. Through different emotions human and non-human animals become different beings, beings that see differently, hear differently, move and act differently. In particular, we human beings become different rational beings, and we think, reason, and reflect differently as our emotions change’. Maturana (ibid) explains that humans move in the drift of our living following a path guided by our emotions. ‘As we interact our emotions change; as we talk our emotions change; as we reflect our emotions change; as we act our emotions change; as we think our emotions change; as we emotion... our emotions change. Moreover, as our emotions constitute the grounding of all our doings they guide our living’.

I find examples of what Maturana means all around me. Let me give an example of systemic practice in which, as you will see, emotions play a part.

### ***9.5.1 An Example of Emotionally Aware Systemic Practice***

I, like many others around the world, have been impressed by the actions and words of US President Barack Obama. I have experienced his words as profound,

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<sup>22</sup>I do not claim that some people are more open to circumstances than others but I do claim that our capability is a product of our history (structural coupling) and the relational milieu we find ourselves in at any moment, which of course also includes language or conversation. Thus different relational dynamics bring forth different emotions.

<sup>23</sup>I do not use apartheid to be deliberately emotive but as a descriptor for my experience of professional academic practice in particular and organisational life in general. By apartheid I mean separateness as in the Afrikaans use of the term.

sincere and aspirational – a set of characteristics that is sometimes described in the learning literature as authentic. I know something about ‘authenticity’ because in the early 1980s I took part in developing a radical education programme that threw traditional approaches to curricula out of the door and rebuilt a whole degree programme based on experiential learning, systems agriculture and effectiveness in communication [33].<sup>24</sup> From that experience I came to understand and appreciate the power and utility of authentic communication. Later, amongst the millions of words that have been written about the President, I came across an article by Jonathon Freedland that gave me insights into Barrack Obama’s practice (i.e. what he did when he did what he did). Not surprisingly, to me, many of these practices are similar to those I ascribe to a systems practitioner in my juggler isophor. These are some of the practices that Freedland describes that caught my attention [16]:

- ‘...he was a good listener, often spending hours with individuals at a time to hear the full story of their lives. It is as if he wanted to learn from them as much as to help them.’ (p. 6)
- He was efficient. ‘He once arranged for 600 residents to talk with officials about contaminated water. He stood at the back, clipboard in hand with a diagram setting out the names of all those who would speak and what points they would make.’ (p. 6)
- ‘He was learning the centrality of preparation – and organization – to making political change.’ (p. 6)
- ‘He won [election as the first African-American president of the Harvard Law Review] thanks, in part, to the votes of conservatives on the Review. They did not agree with him on issues, but they were impressed that he truly listened to them, that he seemed to take them seriously’ (p. 6)
- ‘On one occasion he made a speech defending affirmative action that effectively articulated the objections to it. Rightwingers believed Obama had shown them deep understanding and respect. It was a mode of discourse that Obama would employ again and again...’ (p. 6)
- ‘A former teacher at Harvard, Martha Minow, has said that ‘he spoke with a kind of ability to rise above the conversation and summarise it and reframe it’..
- ‘He always listens, and he might not agree with you, but you never felt he was brushing you off..’ (p. 6)
- ‘...Obama learned a crucial lesson in Springfield – that progress wouldn’t come through smart policy papers or stirring speeches. Relationships were the key....’ (p. 7)

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<sup>24</sup> A concern in the many versions of experiential learning is that of ‘authenticity’ – the relationship of learning to the world of practice. The concept, it is argued, lies at the heart of the attempts by educators since John Dewey to address the relationship between learning and life [24].

- ‘...at least one aspect of Obama’s modus operandi should travel with him into the White House. By all accounts, it’s the same working method he employed at the Harvard Law Review. He would ask his policy advisers to convene the top experts in a given field for a dinner. Obama would make introductory remarks, then sit back and listen – hard. Similarly when convening his own staff for a key decision he might stretch out on a couch on his office, his eyes closed, listening... he asked everyone in the room to take turns sharing their advice, insisting on the participation of even his most quiet, junior staffers. He particularly encouraged internal argument among his advisers thrashing out both sides of an argument’ (p. 7).

To anyone familiar with practice in fields such as community or rural development, grassroots activism, social work and organisational change management, the list of practice characteristics attributed to President Obama in Freedland’s article will not be that surprising. What is surprising of course is that these attributes are held by someone who is now US President. As Freedland observes, ‘after eight years of a president who ostracised those advisers who dared tell him what he didn’t want to hear, the Obama style will be quite a change’ (p. 7).

If asked to explain, on the basis of this sample of attributes, what the key elements of Barack Obama’s practice have been that contribute to his success, I would point to his:

- Encountering of the other as a legitimate other<sup>25</sup>
- Predisposition to learning (which in itself is a way of abandoning certainty)
- Capacity for listening – such that he creates for those in the conversation the experience of being actively listened to
- Capacity and technique of ‘mirroring back’ his understanding of the position of others<sup>26</sup>
- Understanding and valuing of multiple perspectives in respect to a situation or issue of concern
- Ability to move between different levels of abstraction and to synthesise different strands of an argument
- Awareness that change comes through relationships<sup>27</sup>
- Ability, knowingly or not, to be both systemic and systematic (the latter typified by his being organised)
- Use of diagrams as a ‘mediating object’ in his practice

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<sup>25</sup>This is how Maturana explains the arising of love – thus when enacted it generates an underlying emotional dynamic that brings forth ‘love’.

<sup>26</sup>We use ‘mirroring back’ as a form of practice in our research that acknowledges that what we say following, for example, a series of interviews, is our interpretation of what we heard, not a statement of ‘how things are’ (see [41]).

<sup>27</sup>Geoffrey Vickers referred to this as an appreciative system in which choices about relationship making and relationship breaking are made, through which one’s standards of fact and value also change.

Underpinning several of these attributes is a systems practice skill that David Russell and I have described as the choreography of the emotions [33]. In this work we draw on Maturana's biology of cognition and claims that each conversation is shaped interactively by a particular flow of emotion. Our contention is that with practice we are capable of being aware of exactly which emotion is being enacted at any one moment and thus are free to maintain or change the nature of the conversation, and of the relationship in which the conversation is embedded, by modifying the emotion [33, p. 134].<sup>28</sup> An analogy is Donella Meadows dancing with systems as an exemplar of dancing with the emotioning.<sup>29</sup> How one dances becomes part of the flow – as we emotion our emotions change. Evidence of the underlying emotional flow of Donella's own practice can be gleaned from Reading 3 in Chapter 4.

Having accepted this understanding it became a guiding influence for our research and consulting activities for over 15 years. The notions of chorographer (one practised in the experiencing of territory, or situations) and choreographer (one practised in the design of a dance arrangement) become a way of describing our concerns. Mapping the initial relationships locates which emotions are getting which results and offers reflections on how a particular workplace, social, and/or personal culture (pattern of relationships embedded over time) has come about. Designing conversations and actions, itself an ongoing process, is thus an essential role for the systems practitioner. This role, as creative as it is responsible, is at its heart the strategic management of emotions where an emotion is defined as that flow of desire predisposing one towards a particular action. The emotion determines the nature of the action: it is emotions not resources that determine what we do!

### 9.5.2 *Generating a Choreography of the Emotions*

What is striking for me about President Obama is the seeming congruence between what he espouses and what he does. That said, there is no doubt that he has entered politics to effect change for the better, which of course raises the questions of: (i) better from whose perspective? and (ii) how is change effected?<sup>30</sup> Within systems

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<sup>28</sup>We do not mean exact in the sense of a universal set of categories but exact in relation to the history of that person, their manner of living.

<sup>29</sup>See Meadows [27] in which she describes the following dance: (i) Get the beat, (ii) Listen to the wisdom of the system, (iii) Expose your mental models to the open air, (iv) Stay humble. Stay a learner, (v) Honour and protect information, (vi) Locate responsibility in the system, (vii) Make feedback policies for feedback systems, (viii) Pay attention to what is important, not just what is quantifiable, (ix) Go for the good of the whole, (x) Expand time horizons, (xi) Expand thought horizons, (xii) Expand the boundary of caring, (xiii) Celebrate complexity, (xiv) Hold fast to the goal of goodness.

<sup>30</sup>The situation in which the US President operates can also be understood as a structure determined situation so what President Obama can and cannot do is not merely reliant on a set of personal attributes, unfortunately!!

practice in general, and systemic inquiry in particular, the surfacing and valuing of multiple partial perspectives is an important means to address the question of what constitutes change for the better. There is never one single right answer or perspective in relation to complex and uncertain issues. Hence processes of decision making that employ and value different perspectives are likely to lead to decisions that are more robust and fit for purpose. They achieve this because in part they have a more effective grasp on what, in the circumstances, constitutes better. In my experience the act of acknowledging other perspectives also profoundly changes the underlying emotional dynamics.

Too often change is understood systematically rather than systemically. From a systemic perspective change takes place in a relational space, or dynamic, including the space of one's relationship with oneself (i.e. through personal reflection). Russell and Ison [32, 33] have argued that it is a shift in our conversation and the underlying emotional dynamics that more than anything else brings about change in human social systems. We devised the following procedures as part of our systemic practice as a means to engage with the desires, wishes, fears, interests (the full gamut of emotions) of participants in the situations of concern with the aim of achieving an experience of systematic reflection through which there is either: (i) a change in the emotion shaping a particular behaviour or set of behaviours, or (ii) a maintenance of that behaviour because the circumstances have not been conducive to a change in the underlying emotion(s). From this perspective having a choice is understood as creating the circumstances for choosing between alternative emotions. The procedure included:

1. Offer the invitation to tell of one's experience vis-à-vis a specific set of circumstances (What is happening to you? What is your interest in what's happening?)
2. From the above account, identify the dominant metaphors and image schemas
3. Ascribe determining emotions to the imaginative structures (metaphors; organising image). Assisting a participant to become aware of a determining emotion is clearly a crucial step
4. Reflect the emotions back to the participant embedded in the same or in amplified imaginative structures and couched as an invitation to further engage
5. The sequence begins over again and finishes when either party considers that there is something better to do elsewhere

You may recognise this as a refinement of the process that I described in Reading 5 (Chapter 7) in which active listening was a key element of my systemic inquiry practice which also involved mirroring back my understandings as well as those metaphors in use with their entailments.

Another 'choreographic opportunity' exists through inviting others to reflect on what they do when they do what they do! In this regard I have found it helpful to invite others to explore how they understand practice (e.g. Fig. 3.5) and to recognise that we have choices that can be made about the nature of situations.





**Illustration 9.2**

Choreography is concerned with dance which is a common practice across all human societies. Significantly dance is one of the most obvious of embodied practices and in the doing and observing (as part of an audience) its emotional flow is readily apparent. In reflecting on the sensibilities of her parents (Gregory Bateson and Margaret Mead) Mary Catherine Bateson observed that 'both Margaret and Gregory grew up to regard the arts as higher and more challenging than the sciences. This sense of humility in relation to the arts lasted right through their lives' [3].

Unfortunately the realisation of an holistic artistic practice, in the sense imagined by Mary Catherine Bateson, is significantly constrained by a misplaced targets culture, the uncritical acceptance of projectification, our collective failure to be open to circumstance and its contingent nature, as evidenced by inadequate awareness of the choice we make or do not make in framing situations, and the self-imposed apartheid we place on the role of emotions in our doings. These all combine to both create a need for systems practice but at the same time make the circumstances for its uptake and enactment less than conducive. We thus need to invent new social technologies better suited to our circumstances. In the next chapter I explore the opportunities that investment in 'systemic inquiry' might create.

## References

1. Ackoff, R. (undated) Why few organizations adopt systems thinking. Keynote Address, UK Systems Society Annual Conference, Hull.
2. Barnhart, R. (2001) Chambers Dictionary of Etymology. Chambers: USA.
3. Bateson, M.C. (2001) The wisdom of recognition, *Cybernetics & Human Knowing* 8(4), 87–90.
4. Bawden, R.J. (2005) Systemic development at Hawkesbury: Some personal lessons from experience. *Systems Research Behavioral Science* 22, 151–164.
5. Bell, S. and Morse, S. (2005) Delivering sustainability therapy in sustainable development projects. *Journal of Environmental & Management* 75(1), 37–51.

6. Bell, S. and Morse, S. (2007) Story telling in sustainable development projects. *Sustainable Development* 15, 97–110.
7. Blackmore, C.P. (Ed.) (2010) *Social Learning Systems and Communities of Practice*. Springer: Dordrecht.
8. Caulkin, S. (2009) This isn't an abstract problem. Targets can kill. Buzz up! Digg it. *The Observer* Sunday 22 March 2009.
9. Collins, K.B. and Ison, R.L. (2009) Living with environmental change: adaptation as social learning. Editorial, Special Edition, *Environmental Policy & Governance* 19, 351–57.
10. Collins, K. B., Ison, R. L. and Blackmore, C.P. (2005) River basin planning project: social learning (Phase 1) Environment Agency, Bristol (see [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)).
11. Fairtlough, G. (2007) *The Three Ways of Getting Things Done. Hierarchy, Heterarchy & Responsible Autonomy in Organizations*. Triarchy Press: Axminster.
12. Field, M. (1999) *Project Management. Unit 7. Standard Methods. Computing for Commerce and Industry Program, The Open University: Milton Keynes* 72pp.
13. Fisher, D.E. (2006) Water resources governance and the law. *Australasian Journal of Natural Resources Law & Policy* 11(1), 1–41.
14. Fortune, J. and Peters, G. (1995) *Learning from Failure: The systems approach*. Wiley: Chichester.
15. Fortune, J. and Peters, G. (2005) *Information Systems. Achieving Success by Avoiding Failure*. Wiley: Chichester.
16. Freedland, J. (2008) The Obama Story. The Improbable Journey. *The Guardian*, Thursday, November 6 2008, pp. 1–8.
17. Gido, J. and Clements, J. (1999) *Successful Project Management*. International Thompson Publishing: Boston.
18. High, C., Ison, R., Blackmore, C., and Nemes, G. (2008) Starting off right: Reframing participation though stakeholder analysis and the politics of invitation. Proc. Working Group 13 'The OECD's New Rural Paradigm', XII World Congress of Rural Sociology, Seoul, Korea.
19. Ison, R.L. and Armson, R. (2006) Think, Act & Play im Leadership der Kybernetik zweiter Ordnung. *Lernende Organisation. Zeitschrift fur systemisches Management und Organisation* No 33, September/Oktober ([www.lo.isct.net](http://www.lo.isct.net)) ISSN 1609-1248 pp. 12–23. [Published by: Institut für Systemisches Coaching and Training, Zielorientierte Entwicklung von Menschen, Teams & Unternehmen GmbH, Lange Gasse 65 A-1080 Wien, Austria].
20. Ison, R.L., Röling, N. and Watson, D. (2007) Challenges to science and society in the sustainable management and use of water: investigating the role of social learning. *Environmental Science & Policy* 10 (6) 499–511.
21. James, W. (1890/1950) *The Principles of Psychology Vol 1*, Dover: New York.
22. Johnston, P. (2009) The ultimate turnaround from Labour, the dying Government. By abandoning targets, Labour is admitting the depth of its failure. Published: 6:41AM BST 29 Jun 2009 – see [Telegraph.co.uk](http://Telegraph.co.uk)
23. Levene, R. (1997) *Project management*, in *Concise Encyclopaedia of Business Management*. International Thompson Business Press: Boston, pp. 578–597.
24. Maharg, P. (2002) Authenticity in learning: Transactional learning in virtual communities. (See: <http://zeugma.typepad.com/Publications/Prof20Paul20Maharg20ISAGA20article1.doc>, Accessed 1st October 2009).
25. Maturana, H.R. (1991) Response to Berman's critique of The Tree of Knowledge. *Journal of Humanistic Psychology* 31(2), 88–97.
26. Maturana, H.R., Verden-Zöller, G., and Bunnell, P. (Ed.) (2008) *The Origin of Humanness in the Biology of Love*. Imprint Academic: Exeter.
27. Meadows, D. (2001) *Dancing with systems*. Whole Earth, winter.
28. Öhman, A. (1997) On the edge of consciousness: Pre-attentive mechanisms in the generation of anxiety, In *A Century of Psychology: Progress, paradigms and prospects for the new millennium*. Edited by Ray Fuller, Patricia Noonan Walsh and Patrick McGinley, Routledge: London.
29. Pollitt, C. (2003) *The Essential Public Manager*. Open University Press: Glasgow.
30. Reiss, G. (1992) *Project Management Demystified*. E & FN Spon: London.

31. Roux, D. J., Murray K. and Hill, L. (2009) A learning strategy framework for natural resource management organizations. Water Research Commission: South Africa.
32. Russell, D. B. and Ison, R. L. (2004) Maturana's intellectual contribution as a choreography of conversation and action. *Cybernetics & Human Knowing* 11 (2) 36–48.
33. Russell, D. B. and Ison, R. L. (2005) The researcher of human systems is both choreographer and chorographer. *Systems Research & Behavioural Science* 22, 131–138.
34. Schön, D. A. and Rein, M. (1994) *Frame Reflection: Toward the Resolution of Intractable Policy Controversies*. Basic Books: New York.
35. Sjöblom, S. (2006) Introduction: Towards a projectified public sector – project proliferation as a phenomenon. In Sjöblom, S., Andersson, K., Eklund, E. and Godenhjelm, S. (eds) *Project Proliferation and Governance – the Case of Finland*. Helsinki: Helsinki University Press.
36. SLIM (2004) *SLIM Framework: Social Learning as a Policy Approach for Sustainable Use of Water* (available at <http://slim.open.ac.uk>) 41p.
37. Steyaert, P. and Jiggins, J. (2007) Governance of complex environmental situations through social learning: a synthesis of SLIM's lessons for research, policy and practice. *Environmental Science & Policy* 10 (6), 575–586.
38. Turner, R.J. (1999) *Handbook of Project-Based Management*, 2nd edn. McGraw-Hill: London.
39. Vickers, G. (1965) *The Art of Judgment: a Study of Policy Making*, Chapman and Hall: London.
40. Vickers, G. (1970) *Value Systems and Social Process*, Penguin Books: London. [First published by Tavistock Publications, London in 1968].
41. Webber, L. (2000) Co-researching: braiding theory and practice for research with people. In R. L. Ison and D. B. Russell (Eds.), *Agricultural Extension and Rural Development: Breaking out of Traditions* (pp. 161–188). Cambridge University Press: Cambridge, UK.
42. Wikstrom, K. and Rehn, A. (1999) As cited in Sjöblom, S (2006).
43. Winter, M. and Checkland, P.B. (2003) Soft systems: a fresh perspective for project management. *Civil Engineering* 156 (4), 187–192.
44. Winter, M.C. and Szczepanek, T. (2009) *Images of Projects*, Gower: London.