Governance for sustainable development: moving from theory to practice

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Abstract: In this paper we examine and elaborate on the central elements of sustainable development and governance, considering their interrelations as they have emerged from the core themes in sustainable development discourses over the past decade and a half. We argue that sustainability is best viewed as a socially instituted process of adaptive change in which innovation is a necessary element. We discuss four key elements of governance for sustainability, which are integrated into the concept of transition management. The result is a conceptual framework for policy-making and action-taking aimed at progress towards sustainability.

Keywords: governance; innovation; sustainable development; trade-offs.

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1 Introduction

Governance and sustainable development are children of similar history and parentage. They emerged in the late 1980's, with shared characteristics and overlapping potential. By the mid 1990's they were common terms in popular and professional discourse, along with renewed interest in the role of institutions in societal change. Neither of these terms is yet mature or clearly defined. Perhaps more importantly, the overlaps between their wider meanings remain understudied. The terms remain contested, and will continue to be for some time, because their meanings and implications bring different promises and threats to power-holders, old and new.

In this paper[1] we will put forward a view of sustainability and examine the governance aspects of it. We will argue that sustainability is best viewed as a socially instituted process of adaptive change in which innovation is a necessary element. We discuss four key elements of governance for sustainability, which are integrated into the concept of transition management. The model of transition management, currently adopted in the Netherlands, is presented as a practical as well as attractive model for policy, showing that sustainability is not beyond the reach of society.

2 Sustainable development

The concept of sustainable development arose from two main sources: increasingly worrisome evidence of ecological degradation and other biophysical damage, both despite and because of the greater wherewithal provided by economic growth, and the largely disappointing record of post-WWII 'development' efforts, particularly the persistence, and in some places worsening, of poverty and desperation in a period of huge overall global increases in material wealth. The United Nations and associated agencies worried about these matters separately for some decades before appointing the World Commission on Environment and Development (WCED) to address them jointly. The Commission's conclusion was that the ecological and social failures had common causes and demanded a common response. Its final report, *Our Common Future* (WCED, 1987), initiated a flood of interest in, debate about and experimentation with

sustainable development, which was renewed after the publication and subsequent adoption of *Agenda 21*, the *Rio Declaration on Environment and Development*, and the *Statement of principles for the Sustainable Management of Forests* by more than 178 governments at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil, in June 1992.

Over the more than two decades since publication of *Our Common Future*, the idea of sustainable development has been widely, if ambiguously, embraced by a great variety of institutions around the world. There has been much dispute about the meaning and implications of the concept and much criticism of the actual behaviour of bodies that have claimed devotion to it. Gradually, however, some basics have become clear.

Current paths of development are not sustainable

Current resource-intensive development patterns are ecologically and ultimately, economically unsustainable. There are also problems of inadequate worker and consumer protection, poverty and exclusion. While modern economic advances have brought a host of value improvements, including important environmental quality gains, few of the gains have been automatic and the overall results still include persistent development failures and deepening ecological decline.

Sustainability is about protection and creation

Sustainability is often seen as being about protection of amenities (including cultural diversity), but it is equally about continued advancement or *creation*: a better and more just world. Both the protection of amenities and creation of new and better services for more people require innovation in institutions of governance and socio-technical systems. Innovation can help to ease the adverse effects of some trade-offs posed by existing technology. But innovation is not without problems: it also brings risks, which should be anticipated and dealt with.

Requirements of sustainability are multiple and interconnected

The main dimensions consist of maintaining the integrity of biophysical systems, better services for more people, and freedom from hunger, nuisance and deprivation. To these one may add choice, opportunity and access to decision making – aspects of equity, within and across generations. The economist capital model of sustainable development (described in the work of Pearce, Atkinson, and others, for example Pearce et al. (1989) misses out on several dimensions, and, like the people-profit-planet model, fails to address the interconnections. Sustainability is about intermediate *and* long-term integration: the pursuit of all the requirements for sustainability at once, seeking mutually supportive benefits (Gibson, 2001).

Pursuit of sustainability hinges on integration

Because of the interconnections among its factors and purposes, sustainable development is essentially about the effective integration of social, economic, and ecological considerations at all scales from local to global, over the long haul (Schnurr and Holtz, 1998). Compromises and sacrifices are unavoidable. Given the distance between current conventional practice and potentially sustainable behaviour, it is reasonable to expect most near term initiatives to be highly imperfect. But the objective is to recognise the intertwined importance of social, economic and ecological imperatives and to find

ways of contributing to all of them. The aim is not fair treatment of each part, but choices that strengthen the whole in a lasting way.

In early literature, sustainable development was often depicted as expansion of the area where circles of social, economic and ecological quality overlapped. These depictions were useful in stressing the links among desirable social, economic and ecological qualities and in indicating that much of our current activity lay outside the realm of potential sustainability. However, even where the roles of social and ecological as well as economic factors were respected, the tendency to consider them separately proved hard to overcome.

Similar problems beset the 'pillars' based approaches adopted in much of the sustainability literature and in many implementation efforts (Mebratu, 1998). Most often, three pillars – social, economic and ecological – are identified, though culture and politics are sometimes recognised as additional distinct categories (e.g., CIDA, 1997). Important work has also been done in exploring the concepts of social, ecological and economic capital for sustainability, with particular interest in the existence and limits of potential substitutions (Berkes and Folke 1993; Daly, 1996; Dixon and Hamilton, 1996; Costanza et al., 1997). In practical applications however, the pillar-focused approaches have suffered from insufficient attention to overlaps and interdependencies and a tendency to facilitate continued separation of social, economic and ecological analyses. Alternative depictions stressing interconnections and consideration of institutional aspects (as in the PRISM model, see the preface to this special issue and Spangenberg (2002)) offer a useful way forward.

Core requirements and general rules must be accompanied by context specific elaborations

What is most needed, appropriate and workable always depends heavily on the context. The detailed elaboration of sustainability requirements, and the determination of appropriate procedures for accepting or rejecting options and trade-offs must respect the place and time of application, and involve those who will live with the results. The blessing is that approaches designed to recognise local specificity can mobilise and foster local knowledge, building greater understanding of, and commitment to, sustainability objectives. One could say that sustainability is about locally suited options that are globally sustainable. But it is also about local awareness and behaviour that shares the larger agenda. A conflict is likely to occur between localism and globalism, characterised by different mindsets and different logics for action, as noted by Rosenau (2003). The tensions are difficult to reconcile as the controversy over globalisation shows.

Diversity is necessary

The importance of context means not only that there are different good answers for different situations, but also that there are many different ways of designing and strengthening the various foundations and practices of governance to respect the principles of sustainability. While this can be administratively inconvenient, diversity offers positive benefits for sustainable development. Diversity is a source of learning and the fuel of evolution. It is important to safeguard diversity in all dimensions, including socio-cultural, economic and technological. Diversity is a source of learning and a resource base for adaptation and reorganisation (Lister and Kay 2000; Kay and Schneider

1994; Rammel and van den Bergh, 2003). Diversity in product offerings is also needed for meeting heterogeneous preferences and local circumstances.

Surprise is inevitable

Precaution is one of the core requirements for sustainability because there will be surprises. Sustainable development is pursued in a world of multi-dimensional, intersecting and dynamic complex systems. We cannot expect to describe them fully, much less predict future effects. We may lack even suggestive evidence about many emerging problems, whose influences will ripple unpredictably through complex socio-ecological systems. Sustainability calls for prudence and adaptability, preferring safe-fail over fail-safe technologies, seeking broadly comprehensible options rather than those that are dependent on specialised expertise, ensuring the availability and practicality of backup alternatives, and establishing mechanisms for effective monitoring and response (Gibson, 2001, p.19).[2]

Transparency and public engagement are key characteristics of decision making for sustainability

The importance of context, the benefits of diversity and the inevitability of surprise all suggest that transparency and active public engagement are necessary qualities of governance for sustainability. Openness and participation are favoured by the emphasis of sustainability on lively citizenship, which is seen not just as a means of building understanding and commitment, but also as an end in itself – an aspect of the necessary and richer alternatives to lives centred on material consumption.

Explicit rules and processes are needed for decisions about trade-offs and compromises

The objective of sustainability-centred decision-making is to seek positive, mutually supporting gains in all areas. But as this work begins, there will be many cases where no practical option offers benefits of all the required kinds. Inevitably there will have to be trade-offs between goals and there will be winners and losers. Trade-offs have to be faced and dealt with. As a general rule we might agree, for example, to avoid sacrificing a long-term objective to win a fleeting benefit, or to ensure that the end result of any set of compromises still leaves us with net overall positive contributions to the core sustainability requirements (Gibson, 2001).[3] Compensation of losers is another possible strategy, but it should not be applied in all circumstances. Polluters should pay for damage, and not be paid to not damage. Certainly, open and explicit attention to the reasoning behind trade-off and compromise decisions is desirable. While we can work to create systems offering a suite of benefits, waiting for win-win-win solutions to emerge is not a useful strategy.

The end is open

The final characteristic with implications for governance is that sustainable development is an open-ended process. It is not usefully conceived as a particular specified or specifiable target. Pursuit of sustainability is a long-term, indeed never-ending process. The notion of sustainable 'landing places' that is sometimes used by the European Commission is therefore misleading. It suggests that the problem of sustainable development can be 'solved' whereas in reality only specific issues can be resolved and managed. There always will be 'problems' and needs for change (Rammel and van den Bergh, 2003; Sartorius, 2003).[4]

Implementing a commitment to sustainable development entails a substantial transition not just to a broader understanding and a more ambitious set of objectives, but also to more coherently interrelated institutional structures and processes of planning, administration, markets, tradition and choice at every scale (Gibson, 2001; Parto and Doloreux, 2003). Clearly, this is not a transition that can be accomplished quickly or easily. The challenge is to show how such a transition can be accomplished and to develop a core set of tools that would make governance for sustainability manageable.

3   Governance

Like sustainable development, governance is a concept that was first widely explored and embraced in the late 1980's. Also, like sustainable development it was attractive because it encompassed a broad set of factors that were increasingly important and insufficiently recognised in conventional thinking and because it encouraged a more integrated understanding of how these factors were, or should be, linked. Governance scholars viewed the political system as a complex of formal and informal arrangements that were ill-defined and unstable. This was in direct contrast to the conventional view of governments as formal, clearly identifiable, and static entities. Whereas government conjured up an image of formal structures ruling over people, the notion of governance highlighted the increasingly important role of formal and informal arrangements in the political economy.

Governance, understood as a mode of social coordination, is different from *governing;* which is an act, a purposeful effort to steer, guide, control and manage (sectors or facets of) society (Kooiman, 1993, p.2). Governance is how one gets to act, through what types of interactions (deliberation, negotiation, self-regulation or authoritative choice) and the extent to which actors adhere to collective decisions. It involves the level and scope of political allocation, the dominant orientation of state, and other institutions and their interactions. Governance structures organise negotiation processes, determine objectives, influence motivations, set standards, perform allocation functions, monitor compliance, impose penalties, initiate and/or reduce conflict, and resolve disputes among actors (Eden and Hampson 1997, p.362). The effective exercise of power is through a network of interconnected actors, in which all actors hold power, through knowledge resources, money and rights granted to them.

The notion of governance fits in with complex systems approaches to understanding the workings of the political economy through the inter-relationships among identifiable parts (e.g., social, economic and ecological), rather than just the parts themselves. A complex systems approach to governance also implies explicit appreciation of complexity and uncertainty, likelihood of surprise and need for flexibility and adaptive capacity.

That said, governance has been defined and used in many ways in different contexts. Often the concept is given normative as well as descriptive weight. Sometimes, for example in the OECD's and World Bank's usage, it is adopted to serve the neo-liberal agenda of reducing the role of governments in favour of market mechanisms and corporate interests (OECD, 1995; World Bank, 1992). Often it is presented as a means of serving democratic pluralism – defined as the structured ways and means in which the divergent preferences of inter-dependent actors are translated into policy choices to allocate values, so that the plurality of interests is transformed into coordinated action

and the compliance of actors is achieved (Eising and Kohler-Koch, 2000, p.5). This overlooks the authoritative role of government as seen by its citizens, something that is still very prominent in countries such as Germany and France in Europe and most Asian countries.

Arguably, since the early 1980's, authoritative control of social relations has been increasingly exercised through quasi- and non-government entities rather than just formal governments and government institutions. In several ways, citizens have become more powerful with respect to how governing is exercised (through rights of information and co-determination) and with respect to how business activity is conducted (consumer boycotts). The shift from govern*ment* to govern*ance* spells a change in decision making and numerous opportunities for the pursuit of sustainability. We recognise, however, that despite an ideological shift over the past two decades toward liberalisation, government has remained, and is likely to continue to remain, a powerful actor with a major role in discourses on governance for sustainability. This should not be understood as an argument against citizen involvement or stakeholder engagement, both of which are important for at least four reasons: it enhances the legitimacy of policy, helps to reduce the risk of conflict, offers an additional source of ideas and information; and through their involvement, people and organisations learn about environmental problems (Coenen, 2002).

The most significant challenge is to ensure that multi-player governance regimes embody capacity for sustainability-oriented coordination, direction and re-direction. It is clearly reasonable and appropriate to recognise that business organisations, civil society groups and citizens, as well as formal governments have roles to play and are already important actors. Finding ways to ensure that all these players act coherently, effectively and with some efficiency in the pursuit of sustainability demands much higher ambitions and underlines the crucial role of informal institutions. A variety of tools are available including development of explicit common objectives, targets and indicators; use of multi-stakeholder deliberation and decision mechanisms; and creative application of tax and regulatory instruments to foster cost internalisation and other adjustments to business and consumer behaviour in the market place. But all of these rely, more or less heavily, on a continuing central (and formal) role for governments in coordinating and often initiating action, and in legitimising and entrenching the decisions.[5]

4   Governance for sustainability: key components

Better governance is a prerequisite for, and probably also a product of, steps towards sustainability. Much is expected from 'good governance'. According to the European Commission, good governance consists of openness and participation, accountability, effective coherence, efficiency (proportionality) and greater sensitivity to the immediate context that is promised by subsidiarity. For sustainability, other requirements include means of internalising external costs and ensuring integration of policy considerations, evaluation of options and dealing with trade-offs. It is worth noting that in the Commission's definition of good governance the emphasis is on the role of institutions as entities that are largely viewed as being 'up there' and, at least currently, insufficiently within the reach of ordinary citizens. As such, this view of governance seems concerned primarily with minimising bureaucratisation and hierarchy. The intent of the White Paper on European Governance (CEC 2001) is to make *formal* institutions – which are

increasing in size and number – more accessible, accountable, and relevant to the general populace and to retain a higher degree of relevancy, credibility, and legitimacy in the average person's mind. The White Paper's necessary but exclusive focus on formal institutions overlooks the important role played by other, less formal, institutions in European governance, particularly in policy formation and implementation. To fully appreciate the role of institutions, they should not be viewed as synonymous with bureaucracy (Parto, 2005a, 2005b). Because a major portion of sustainable development is ultimately about radical changes in the systems of production and consumption, governance for sustainability is, by implication, about working through formal *and* informal institutions to bring about societal change.

Effecting change in informal governance institutions, such as habits and routines, requires identifying the levels at which the change is desired, the territorial scale at and through which the desired change is to be implemented, and the systems which are likely to be affected due to the desired change. The challenge will be to find ways of establishing governance regimes that have reasonable coherence of vision and commitment, enjoy trust and are accountable, and have sufficient capacity for coordination, direction and re-direction.

Governance for sustainability has certain key features and components. In the following we identify four of these components and elaborate on some of their main features.

4.1   Policy integration

An important 'interrelations' issue is the coordination of government policies and the corresponding and complementary positions and initiatives of other governance actors. The evolution of the modern state has been towards an increasing degree of sectoral specialisation to deal with differentiated problems. Specialisation has helped develop valuable responses to particular problems, but it has also led to neglect of broader considerations and to partial solutions that are inadequate or damaging from a broader sustainability point of view. Cost-increasing end-of-pipe solutions transferring a pollution problem at the site into a waste problem elsewhere are a good illustration. Sustainability requires policy integration, along with improved interaction between government and non-government institutions and the creation of a longer-term view in government (OECD, 2001, p.11).

Policy integration is not the consolidation of policies to create a single integrated policy dealing with everything. There remains a need for specialised policies (cf. Hertin and Berkhout, 2002).[6] Effective integration for practical decision making centres on acceptance of common overall objectives, coordinated elaboration and selection of policy options, and cooperative implementation designed for reasonable consistency and, where possible, positive feedbacks.

Attempts at environmental policy integration have been examined in the COMPSUS study and the OECD study 'Governance for sustainable development' for selected countries. The COMPSUS study found that much more progress has been achieved with vertical environmental policy integration – which is policy integration *within* the governmental sector – than with horizontal environmental policy integration – which is integration *across* policy sectors. The rather negative conclusion of the COMPSUS study is that 'the process of intra-ministerial integration has been more formal than substantive. …. Even where the intra-ministerial integrative ideal has been more

thoroughly pursued – as in Norway or Canada – the quality of the departmental engagement with environmental concerns or the broader sustainability development agenda is typically weak' (Lafferty and Meadowcroft (2001), quoted in Lafferty (2002, p.21)).

This clearly dampens any great optimism. Policy integration is a long and difficult process in which political will is important. Full policy integration may not be achievable but significant gains can be made. Lafferty offers several suggestions for vertical and horizontal policy integration within the environmental realm. For vertical integration he recommends specification of major environmental impacts of policies and activities, establishment of a system of dialogue and consultation, sectoral strategies for change, action plans, budgets and monitoring programmes. For horizontal integration, he proposes use of long-term sustainability strategies for sectoral domains, specific governing bodies entrusted with overall coordination and supervision of the integration process, communication programmes, and national action plans with targets and ongoing programmes for assessment, feedback and revision and conflict resolution procedures.

4.2   Common objectives, criteria, trade-off rules and indicators

Experience with environmental and other policy integration efforts indicates that in large organisations, including national governments, only limited gains are possible through structural measures (creation of inter-ministerial committees, establishment of new cross-sectoral agencies and the like). Some further improvements can be won through structural changes tied to mandatory reporting and monitoring requirements that impose a sustainability-oriented framework for justification and make institutional behaviour more transparent.[7] Certainly multi-stakeholder decision making, co-management, advisory round tables and other mechanisms engaging multiple governance institutions can contribute to effective integration (Berkes et al., 1991; Cormick et al., 1996; Hemmati, 2002; Abaza and Baranzini, 2002; Dorcey, 2004). But most of these are useful only for particular cases or a few priority concerns. For more general application, a suite of additional, process-related tools are needed.

Four such tools are shared long-term objectives, common criteria for planning and approval of significant undertakings, specified rules for making trade-offs and compromises, and widely accepted indicators of needs for action and progress towards sustainability. Versions of all of these have been developed and applied by particular governance institutions for limited purposes. Sometimes they have even been designed and adopted by coalitions of governance bodies with broad sustainability ends in mind. Nevertheless there remains considerable potential for more general and comprehensive application in governance systems:

Shared sustainability objectives

As we observed at the beginning of this paper, debates about the meaning and implications of sustainable development have now progressed far enough to reveal the essential core requirements for sustainability. This opens the door to reasonably clear specification of related objectives for particular regions, nations and localities. Sustainability-centred objective setting processes, involving multiple governance institutions, have already been used, with some good results, in many jurisdictions (e.g., Devuyst, 2001; Köhn et al., 2001; Vaidyanathan, 2002). Perhaps the most common

and practically influential examples have been those of cities and urban regions that have developed new or revised land-use plans through processes including collective development and review of future scenarios and public debate on planning goals and alternatives (Boyle et al., 2004). But larger scale versions are certainly possible.

Sustainability-based criteria for planning and approval of significant undertakings

It is now common for governments at the national, provincial/state, and even municipal levels, to impose environmental assessment or planning approval requirements on proponents of major public and private sector undertakings. Environmental assessment, in particular, is widely applied, often at the strategic level of policies, plans and programmes, as well as at the level of physical projects. In many jurisdictions, the assessments cover a comprehensive agenda with 'environment' defined to include social, economic and cultural as well as biophysical aspects and their interrelations. And in a growing number of cases, the test of approval is an obligation to show that the purposes are sound and that the proposed undertaking is the most desirable of the potentially reasonable options and will make a positive overall contribution to sustainability (Gibson, 2000). Similar approval requirements, with explicit sustainability criteria, are also now applied in a variety of other venues including non-government product certification programmes, in investment rankings of ethical corporations, and in progressive building standards. While practice in this area is still primitive, the imposition of such 'higher test' criteria in approval processes may be expected to expand pressures for the development of generic sustainability-based evaluation criteria, better processes for specifying these locally and more frequent and advanced of associated modelling and other analytical techniques in integrated assessment and related areas (Gibson, 2001; Rotmans and van Asselt, 2002).

Specified rules for making trade-offs and compromises

As we noted above in the discussion of sustainability and its implications, prospects for progress would be much enhanced by the availability of explicit rules and processes for decisions about trade-offs and compromises. Examples of such rules include (Gibson, 2001)

- compensations and substitutions involving direct and indirect compensation for negative effects (where these cannot be fully mitigated): e.g., later rehabilitation of aggregate mining operations on somewhat degraded agricultural lands (substitution in time), and construction of a human made wetland to replace a relatively natural one (substitution in place)

- net gain and loss calculations involving aggregation of net gain and no net loss calculations: e.g., weighing major damages to the interests of tribal people displaced by a new dam against more material security for larger numbers of poor farmers downstream (differences in place); and weighing efficiency gains from industrial process improvements balanced against associated job losses (substitution in kind, across principles).

Widely accepted indicators of needs for action and progress towards sustainability

A great deal of effort has already gone into the identification and elaboration of sustainability indicators. Perhaps this is partly because for many institutions, work on indicators seemed less threatening than actual interventions for change. But indicator

development remains valuable as a way of clarifying what is important (thereby also contributing to objective setting), and well chosen and focused indicators can be powerful devices of education, empowerment and agitation.[8]

Taken as a set, these tools could provide a well integrated, reasonably clear and yet flexible and locally adjustable foundation for sustainability-focused decision-making. For all four tools, the core applications may be in more or less formal institutional decision-making. But the underlying idea is to establish habitual expectations and entrenched practices that would spread to choices and activities outside the realm of formal deliberation and approval.

4.3   Information and incentives for practical implementation

By itself, a foundation for sustainability-based decision making is insufficient. Governance for sustainability also needs means of spurring and guiding appropriate action. Policy instruments of many kinds are available – tax reforms regulations, procurement rules, liability laws, education programmes, product labelling, tenure arrangements, power-sharing processes, etc., – and many combinations are possible.

Because market-based or influenced decision making will necessarily continue to play a major role in governance at all levels, a key challenge will be to make prices more accurate indicators of embodied costs – social and ecological as well as economic. But simple means are rarely available. Identifying, evaluating and monetising externalised costs is often frustrated by limited knowledge, competing methodologies and moral dilemmas. And resistance to imposition of cost internalising measures is common even in simple cases involving the well-accepted 'polluter pays' principle. Here again it seems that carefully integrated, monitored and adjusted application of multiple tools will be necessary.

4.4   Programmes for system innovation

Many sustainability benefits may be obtained immediately through the use of currently available technologies. In the longer run, however, sustainability requires transitions involving system innovation. Policymaking on sustainability has, for the most part, relied on performance standards or the prescription of certain solutions. The solutions adopted helped to secure *partial* sustainability benefits. Governance for sustainability requires policymaking frameworks that actively seek to identify, nurture, and coordinate action for more sustainable technological niches. And since technological innovations promise only some of the needed improvements, governance initiatives must ensure that they are accompanied by co-evolving societal processes characterised by continuous changes in formal and informal institutions. For this, governance for sustainability has to be more anticipatory, oriented towards the long-term, using visions of sustainability, and concerned with learning, innovation and adaptation.

Substantial improvement of the current trajectories of development requires 'system innovation', a fundamental change in the systems of goods provision, by using different resources, knowledge and practices. System innovation in the socio-technical realm constitutes change beyond the level of the technical components. It is associated with new linkages, new knowledge, different rules and roles, a new 'logic of appropriateness', and often new organisations. Two examples of system innovation offering environmental benefits are the hydrogen economy (with the hydrogen generated in clean ways, for

instance through the use of renewable electricity sources) and integrated mobility (or chain mobility).

In the vision of integrated mobility, users use different transport modes (collective ones and individual ones such as a car and bicycle) based on information from mobility agencies that offer travel plans and facilities to make reservations. Chain mobility involves a wide range of changes, in infrastructure (in the form of park and ride stations and special bus lanes), in technology (such as light rail in conurbations) and also an array of social and organisational changes: the collective ownership and use of cars (car-sharing and riding), the creation of mobility agencies offering and selling inter-modal transport services, the integration of collective transport schemes, and the introduction of transport management system for employees by companies.

Such new systems are unlikely to emerge through the normal operation of markets. System innovation is inexorably linked with institutional change. It cannot be caused by a single variable or event and requires transition management with elements of planning. It requires replacement of old outcome-based planning with reflexive and adaptive planning (Kemp and Loorbach, 2003).

5 Transition management

Change towards sustainability in a world of complex and dynamic human-ecological systems, is an unending process of transformation. Today, many companies seem more involved in this journey than governments are. Whereas many companies have moved to adopt the model of socially responsible corporate behaviour of the World Business Council for Sustainable Development, government policy in most jurisdictions addresses problems of sustainability in inconsistent ways and fails to build upon socially responsible corporate strategies (Bleischwitz, 2004). It often supports non-sustainable behaviour and gives only lukewarm support to system innovation. In both government and corporate sectors, visions of sustainability are rarely used as a compass for policy, and sustainability-centred policy integration remains an ideal to which policy makers are committed only in words.

It is often said that the world has become more complex, defying steering attempts because of a knowledge problem and governance problem (Mayntz, 1994). In Section 4 we offered suggestions for sustainability policy, in the form of conceptual equipment. In this section we offer an overall conceptual model or perspective that brings together the conceptual equipment – the model of transition management developed by Rotmans and Kemp for the Dutch government. The Rotmans-Kemp model conceptualised the challenge for policy as a transition process: unsustainable functional systems have to undergo a transition. The model is thus oriented to functional systems, which appears as a useful target for sustainability policy. It is of course only an element of the wider transition endeavour of making a transition to a more prosperous, equitable and just world, an ongoing task that requires targeted policies besides integrated ones.

Transitions are co-evolution processes: the result of the interplay of many unlike, particular processes (Rotmans et al., 2000; Kemp and Rotmans, 2001; Geels, 2002). Transitions involving system innovation cannot be managed in a controlling sense but they can be aimed and guided in an iterative, forward-looking, adaptive manner, using markets, institutions and hierarchy (the three basic forms of coordination).

In managing transitions, four basic rules require special attention (Kemp and Loorbach, 2003):

- *Be careful not to get locked into sub-optimal solutions.* This calls for anticipation of outcomes and the use of markets for coordination and context control instead of planning. A second way of circumventing lock-in is by exploring different configurations through portfolio-management – a common strategy in finance is to hedge risks. One should not bet on one horse, but explore a wide variety of options, both incremental and radical.

- *Embed transition policy into existing decision-making frameworks and legitimise transition management.* Transition management should be politically accepted and be a joint concern for different policy makers and society at large. Long-term goals chosen by society should guide policy, including responses to short-term concerns.

- *Take the long view of a dynamic mechanism of change.* Make sure that the process does not come to a halt when positive results do not immediately materialise due to setbacks. One way of keeping the process on track is to view and institute learning as a policy objective.

- *Engage in multi-level coordination.* Coordinate top-down policies with bottom-up initiatives (engage in vertical coordination besides horizontal coordination). Local experiments should inform national policies and there should be strategic experimentation for system innovation; two things that did not happen in the past. There should be more and better coordination between top-level policies and local policies and also among various horizontal policies. National policies should be coordinated with international policies, because go-it-alone policies can be economically harmful unless there are clear first-mover advantages.
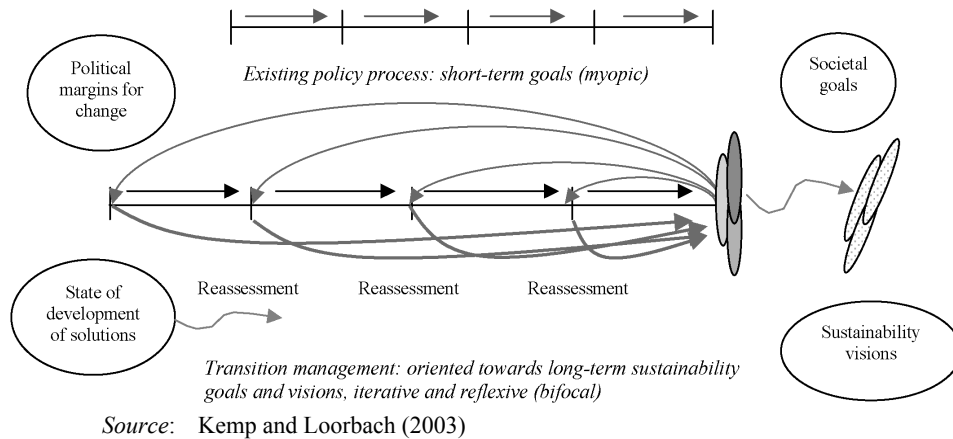
A last transitional consideration is *fairness* (Gibson, 2001). As noted above, even many of the most desirable sustainability-oriented initiatives will involve trade-offs, bringing the danger of inequitable distribution of gains and losses. Such inequities are particularly worrisome where the losses may be borne by those who are already disadvantaged (a sadly common feature of past development assistance projects). Preparing for just transitions (Burrows, 2001) that avoid adding to disadvantages, and provide satisfactory compensation when all else fails, is crucial.

In the Netherlands the national government committed itself to sustainability transitions in energy, transport, water management, natural resource use, and agriculture. For this they are using the model of transition management developed by Rotmans et al. (2000) (elaborated in Kemp and Rotmans, 2005; Kemp and Loorbach, 2003) A schematic view of transition management is given in Figure 1.

The Dutch model of transition management is a form of process management. Transition management has short-term goals and long-term goals, with the latter being based on societal goals and visions of sustainability. The short-term goals are informed by the long-term goals and comprise learning goals. Sustainability visions are explored using small steps. Transition management breaks with the old plan-and-implement model aimed at achieving particular outcomes. It is based on a different, more process-oriented philosophy. This helps to deal with complexity and uncertainty in a constructive way. Transition management is a form of process management performed against a set of

goals set by society whose problem-solving capabilities are mobilised and translated into a transition programme, which is legitimised through the political process.

Figure 1   Transition management

Existing policy process: short-term goals (myopic)

Political margins for change

Societal goals

State of development of solutions

Reassessment   Reassessment   Reassessment

Sustainability visions

Transition management: oriented towards long-term sustainability goals and visions, iterative and reflexive (bifocal)

Source: Kemp and Loorbach (2003)

Transition management does not aim to realise a particular path at all costs. It engages in the exploration of promising paths, in an adaptive manner with exit strategies. It does not consist of a strategy of forced development, going against the grain, but uses bottom-up initiatives and business ideas of alternative systems, offering sustainability benefits besides user benefits. Key elements of transition management are

- development of sustainability visions and setting of transition goals

- use of transition agendas

- establishment, organisation and development of a transition-arena (for innovative actors) besides the normal policy arena

- use of transition-experiments and programmes for system innovation

- monitoring and evaluation of the transition process

- creating and maintaining public support

- portfolio management

- use of learning goals for policy and reliance on circles of learning and adaptation.

In this paper we cannot explain it in full. It fits with all the considerations of sustainability described in Section 2 and incorporates the key components of governance for sustainability of Section 3, namely policy integration, common objectives and criteria, internalisation of external costs, and programmes for system innovation.[9] It puts government policies in a different, longer-term perspective and tries to better align specific policies. It is not based on blueprint thinking. No choice is made about ideal future functional systems. Different visions and routes are investigated through adaptive policies: decisions are made in an iterative way and support is temporary. To ensure flexibility, the goals and policies towards these are continuously re-assessed and adapted. By being adaptive and anticipatory, transition management helps to deal with the tension

between creative change and conservation, between innovative experiments and maintaining the integrity and stability of functions (Rammel et al., 2004). Transition management is best understood as an attempt at *goal-oriented modulation* or directed incrementalism (Grunwald, 2000), offering a model for policy integration.

6   Conclusions

In this paper we have attempted to unpack and integrate the very large and unruly notions of sustainability and governance to make a case for transition management as the framework of analysis to devise pathways to a more sustainable future. In making this case, we underlined the centrality of system innovation as a policy approach. We further drew attention to the necessity of a multi-dimensional perspective on institutions through which governance is exercised.

Governance for sustainability presents an enormous but unavoidable challenge. Continued unsustainability is not a viable option. For progress towards sustainability, we need to establish governance structures and practices that can foster, guide and coordinate positive work by a host of actors on a vast complex of issues, through webs of interconnection and across multiple levels and scales, with sensitivity to their contexts and respect for uncertainties. Such a conception has considerable advantages. It encompasses the multiple and diverse strengths, motives and capabilities, not just of conventional government agencies and business interests, but of the full set of public, private and civil society players, collective and individual, plus their myriad interrelations. The challenge is to achieve sufficient integration of understanding, direction and action to achieve the desired transition.

We cannot assume the automatic wisdom of the market, or any other blind mechanism. Nor can we conjure up the commitment and omniscience required for comprehensively capable central authority. In the establishment of effective governance for sustainability, we must incorporate and also reach beyond the powers of commerce and command – a task best accomplished through understanding, guidance and process.

No broad transition can be accomplished quickly or easily, and the human record in consciously designed and directed transitions is not good. If the transition to sustainability is to be successful, it must be pursued with as much humility as commitment, as much diversity as direction, and as much creative experimentation as resolute protection. Necessarily, much will depend on the credibility of the decision makers and the decision-making process. In governance for sustainability, a host of quite different players must be involved. They are unlikely to work together easily, which is why there should be a commitment to transitions and why government, as a democratic authoritative power is important (even when government is part of the problem).

There is no single best form of governance for sustainability. The details must vary, respecting the specifics of context from case to case. Nevertheless, the deliberations on governance for sustainability so far, do point to a basic foundational outline and strategy, and there is reason to believe that we can clarify and specify much more without compromising respect for particular circumstances. The quest for sustainability may be the quest for an elusive 'Holy Grail' of integrated understanding and action that is not fully possible, and will never be found in a single pure form. But a good deal can be done. Progress is possible.

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Notes

[1]This document draws on and benefitted greatly from discussions held during work-shops in Maastricht (November 21–22, 2003) and Vienna (December 13–16, 2003) and written contributions from members of the Governance for Sustainable Development network (see www.gosd.net).

[2]Diversity increases resources for adaptability and hedges risks against shifts in the environment. This shows again that diversity is a key element of sustainability.

[3]For an extended discussion of possible trade-off rules tied to the core sustainability requirements, see Gibson (2001, pp.22–25).

[4]This leads Rammel and van den Bergh (2003) to the view that adaptive flexibility is a core-element of sustainable development. Sartorius (2004) calls the capacity to respond and adapt '2nd order sustainability'.

[5]Only a few major recent efforts to introduce new sustainability-oriented mechanisms of governance have dispensed with a significant government role. The forest practices and products certification work of the Forest Stewardship Council is one remarkable example.

[6]Although policy coordination or alignment is often more accurate terms than policy integration, we will keep to the conventional term.

[7]Examples include some environmental management system approaches, national pollutant release registries, and obligatory production and monitoring of sustainable development strategies (as is done by Canadian government ministries under the eye of the Commissioner for the Environment and Sustainable Development).

[8]The ambition of the GoSD project is to develop such indicators – see the last paper in this special issue for a first attempt at that.

[9]The one element that is not incorporated in it is rules for dealing with trade-offs.

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