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Analysing the role of sustainable development indicators in accounting for and constructing a *Sustainable Scotland*

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Abstract

The main objective of this paper was to analyse how sustainable development indicators impacted upon the integration of sustainable development into the governing of Scotland. A major concern was whether an accounting technology could represent this complex multi-dimensional and interdisciplinary concept. We analysed the relationship between the official sustainable development strategy of the Scottish Executive and the associated indicator set using an analytics of government framework (Dean, M. (1999). *Governmentality: Power and rule in modern society*. London: Sage Publications. Dean, M. (2007). *Governing societies*. Berkshire: Open University Press). We observed a lack of alignment between these sustainable development indicators and the visions, fields of visibilities, forms of knowledge and techniques of government contained in this strategy. Critical aspects of this strategy were omitted from the indicator set and we argue that these indicators did not to effectively measure progress towards a *Sustainable Scotland* but that they could calculatively capture and distort the sustainable development governing process. The analytical framework used allowed us to problematise these indicators and contribute to a wider discourse on the composition and nature of sustainable development indicators.

Keywords: Sustainable development; Indicators; Accounting; Governmentality; Scotland

> We are determined to lead a government which is an exemplar of sustainability. We have made progress already but have no doubts that there will be many more hard choices balancing the social and economic with the environmental. Scotland bears the scars of decisions taken in the past—but we are determined to stay the course and bring about the long-term changes in the way we govern, so that Scotland sets an example to the world. Foreword to **Choosing our Future** (2005).

1. Introduction

Sustainable development is currently a powerful global counter-narrative to contemporary western lifestyles and forms of governing societies (Beck & Wilms, 2004). Despite previous strenuous denials, elements of the sustainable development counter-narrative have become accepted as social and scientific facts. Accordingly, sustainable development is transforming from a sub-political narrative into the rationalities and practices of governing by institutional actors in different contexts and across different scales. This institutional acceptance of the sustainable development narrative is expected to continue in line with our growing knowledge of damage done to natural eco-systems, social

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injustices perpetuated on our own species and the impending catastrophes that threaten all life forms on this small, blue planet.

Although sustainable development has formed part of the publicly stated ideals of many individuals, businesses, NGOs and governments; there was (and still is) significant confusion and contestation over its meaning and implementation (Bebbington, 1997; Bebbington & Gray, 2001; Jordan, 2008). In an effort to explore accounting and governing for sustainable development in Scotland we conducted a longitudinal analysis of sustainable development strategies and indicators between 1999 and 2008, to observe how sustainable development was translated into the governing of Scotland's society and how the Scottish Executive[1] accounted for the transition towards sustainable development. This paper reports on our analysis of *Choosing Our Future* (Scottish Executive, 2005b), a sustainable development strategy, and how sustainable development indicators impacted upon the integration of sustainable development into the everyday governing of Scotland. A major concern was how effectively an accounting technology could represent this complex multi-dimensional concept.

We view sustainable development indicators as a social and environment accounting technology and this paper was informed by prior research on accounting as a technology of governing (Gouldson & Bebbington, 2007; Miller & O'Leary, 1987; Miller, 1990; Hopwood & Miller, 1994; Miller & Rose, 1990; Rose, 1991). Most of this literature is informed by Foucault's concept of *governmentality* (1979, 1981, 1986, 1991a,b, 1993), which also underpins the 'analytics of government' framework (Dean, 1999, 2007) with which we examined the relationship between a sustainable development strategy and sustainable development indicators in Scotland at the beginning of the 21st century.

Sustainable development was part of the responsibilities[2] devolved to the Scottish Parliament in July 1999. Since then, the Scottish Executive has periodically made public commitments to sustainable development through policy documents (Scottish Executive, 2002, 2005b; Scottish Government, 2007) and publication of progress reports (Scottish Executive, 2003, 2004, 2005a; www.scotland.gov.uk/Topics/SustainableDevelopment/measuring-progress). Moreover, sustainable development has been described as a defining characteristic of government in Scotland. For example:

> sustainable development is not a single policy; it is an approach to all policies, which is why it goes to the very heart of sound governance. **Down to Earth** (The Scottish Office, 1999:3)

> Just as every decision and action is targeted at closing the opportunity gap, so too will all our work be judged against how well we conserve and sustain the environment that our children will inherit from us. Scotland is a land of many riches; our natural resources and the talents of our people. Our responsibility to future generations is to conserve, protect and harness all those resources. Foreword, **Meeting the Needs** (Scottish Executive, 2002).

> Our choices in addressing environmental pressures will be critical to shaping a modern, successful and sustainable Scotland, and to maintaining a quality of life which retains and attracts talented people. **Spending Review 2007** (Scottish Government, 2007).

The production of three sustainable development strategies[3] in a 5-year period demonstrated a public commitment to the concept and its delivery. However, it also indicated problems with sustainable development policy making and previous strategy documents. The following quote hinted at past difficulties:

> Sustainable development is a concept easy to subscribe to, harder to put into practice. What matters is the change to culture, policy and action that results from a strategy – and this one is designed to deliver such change. Foreword to **Choosing our Future** (Scottish Executive, 2005b)

Choosing Our Future (2005), the official sustainable development strategy[4] at the time of our study, incorporated all of the elements of previous strategies and introduced a number of additional considerations. For example, it introduced

[1] The Scottish Executive refers to the ruling cabinet of the Scottish Parliament, however, since September 2007 it was renamed the Scottish Government. As this paper mainly deals with documents prior to 2007 we use the term Scottish Executive.

[2] The devolved responsibilities relate to agriculture, forestry and fishing, education and training, Gaelic, health, housing, law and home affairs, local government, natural and built heritage, planning, police and fire services, social work, sport, arts, statistics and public records, transport, tourism and economic development. Reserved matters that remain with the UK Parliament include foreign affairs, defence, national security, benefits and welfare payments.

[3] Down To Earth was produced in 1999 by the UK Parliament's Scottish Office prior to the establishment of the Scottish Parliament.

[4] Spending Review 2007 introduced a number of major reforms to Choosing Our Future but will not be operationalised until April 2008.

a stronger recognition of inter- and intra-generational equity in Scotland and globally (Russell & Thomson, 2007). By examining the sustainable development indicators alongside this particular sustainable development strategy we gained a number of insights into how effectively sustainable development was integrated into governing the transition to a *Sustainable Scotland*.[5]

The paper is structured as follows. First, we present and justify the analytic framework that was drawn from our review of governmentality-related literature on governing societies and accounting, critiques of sustainable development indicators and the sustainability of sustainable development strategies. Second, we describe our empirical site and research methods adopted. Third, we present and analyse the evidence gathered from our analysis of Choosing Our Future and sustainable development indicators. The paper will conclude with a discussion of our key findings and implications of this study.

2. Reviewing the literature: governmentality, accounting and sustainable development

This section presents and justifies the analytical framework applied to Choosing Our Future, the strategy and sustainable development indicators. This framework draws on a number of sources including, governmentality, accounting, sustainable development indicators and critiques of sustainability of sustainable development strategies. However, our analytical framework drew mainly upon the work of Mitchell Dean in two main ways. Dean's (1999) analytics of government was used to critique and analyse the Scottish Executive's attempts to transform Scotland along a sustainable development trajectory as represented in Choosing Our Future. In addition, Dean's (2007) critique of contemporary western styles of governing, particularly his notion of authoritarian liberalism provided a wider governmentality context within which to locate our analysis of Choosing Our Future.

There is a large body of work that interpreted accounting as a technology of governing underpinned by Foucault's concept of governmentality (Foucault, 1979, 1981, 1986, 1991a,b, 1993; Gouldson & Bebbington, 2007; Hopwood & Miller, 1994; Hoskin & Macve, 1986; Miller & O'Leary, 1987; Miller, 1990; Miller & Rose, 1990; Neu, 2000; Rose, 1991). Governmentality has also been used in different academic disciplines to analyse political and business responses to the growing social and environmental crisis (e.g. Dean, 2007; Gouldson & Bebbington, 2007; Hajer, 1997; Luke, 1999; Oels, 2005).

Our analytical framework allows us to analyse Choosing Our Future in multiple layers. One layer of analysis is to understand this sustainable development strategy and sustainable development indicators in terms of vision, visibilities, identities, techniques of government and legitimate knowledge forms. Another layer of analysis is the alignment and reflexivity between Choosing Our Future and the sustainable development indicators used to monitor delivery, measure performance and account for the Scottish Executive's sustainable development activities. Another layer of analysis is the sustainability of Choosing Our Future's objectives and sustainable development indicators. We also evaluate the sustainable development strategy within a specific governmental context. Our final layer of analysis comes from examining the sustainable development indicators from prior research into accounting from a governmentality perspective.

This section will continue with a discussion of analytics of government and Dean's (2007) notion of authoritarian liberalism. This will be followed by a discussion of the key insights from prior governmentality critiques of accounting and a review of the literature on sustainable development indicators. This is followed by our attempt to provide a conceptual typology to evaluate the sustainability of sustainable development strategies. Finally we amalgamate these insights to present an analytical approach to understand sustainable development government strategies and the impact of sustainable development indicators.

2.1. Analytics of government and authoritarian liberalism

Dean (1999) expands Foucault's definition of government as the 'conduct of conduct' to view government as:

> Any more or less calculated and rational activity, undertaken by a multiplicity of authorities and agencies, employed a variety of techniques and forms of knowledge, that seeks to shape conduct by working through

[5] This term was used in Scottish Executive documents to denote the desired state arising from their sustainable development strategies.

> our desires, aspirations, interests and beliefs, for definite but shifting ends and with a diverse set of relatively unpredictable consequences, effects and outcomes. Dean (1999:11)

This paper draws upon this definition and positions Choosing Our Future and its indicator set as technologies of government used by the Scottish Executive to shape conduct in the transition to a *Sustainable Scotland.* One of Dean's (1999) contributions to the governmentality field was his analytics of government framework to interpret the practices and rationalities of government. The components of government subjected to analysis in his framework are visions of government, fields of visibilities, formation of identities, techniques of government and forms of knowledge used to govern within specific contested arenas.

Dean (1999) contends that government is a representation of 'bodies of knowledge, belief and opinion in which we are immersed' (1999:16), but, that these are not readily observable to those governing or being governed. However, certain aspects are made observable through government discourses, policy documents and reports. Governmentality is a framework to analyse and diagnose second order statements about governing which comprise the rationalities of government (Dean, 2007). By analysing government documents that are part of wider sustainable development discourses, we can gain insights into the deliberation and direction of human conduct in the context of sustainable development. Furthermore, by investigating how sustainable development was constructed and depicted in these documents we can gain important insights into the relationships between the sustainable development strategy, sustainable development indicators and its implementation.

The analytical process put forward by Dean comprises of two main stages. The first stage involved deconstruction of the project of government into the elements of the analytical framework. The second stage is to interpret and diagnose problems with these elements using prior governmentality studies, predominantly, but not exclusively, with reference to Foucault (1979, 1981, 1986, 1991a,b, 1993). Dean (1999, 2007) uses typologies of governing objectives, fields of visibility, techniques of government, knowledge forms and identity construction associated with sovereignty, disciplinary power, biopower, liberalism and authoritarian liberalism (summarised in Table 1) to understand and problematise contemporary styles of governing. Analytics of government is not normative but rather is an analytical, interpretive approach designed to create space for further discourses.

Dean (2007) critiqued contemporary western governments using an analytics of government approach and concluded that they were not examples of advanced liberalism government but a form of authoritarian liberalism. Authoritarian liberalism is a style of government that emerged from the paradox of advanced liberalism that claimed to operate through individual freedom and choice yet required these freedoms to be legally defined, policed and large groups of society to be governed in a way that increases surveillance, detailed administration and sanction (p.127). Advanced liberal government constructs and defines a normal citizen through 'exception, pathologies and dependencies discovered, diagnosed and remedied by human sciences in conjunction with government practices and the sovereign powers of the state', Dean (2007:128). Within authoritarian liberal governments order is always at risk and requires extensive surveillance of individual and collective conduct and the delegation of sovereign powers into everyday mundane social practices. States of exceptions are invoked to allow governments to make things safe even if that involves taking exceptional measures. Dean argues that advanced liberal governments cannot exist without the underlying power and violence associated with sovereignty. Advanced liberalism re-instated sovereignty to deal with the exceptions that it creates, e.g., the poor, the criminal, the sick, climate chaos, in order to secure a social system that will allow the 'normal' to flourish.

The exercising of this power is dependent upon a series of dividing practices to diagnose disorder and pathologies, establish rights, responsibilities, obligations, domains of freedom/coercion and legitimacy to unleash the powers of the state. Of concern is how sustainable development strategies and sustainable development indicators may be used as dividing practices to delineate 'sustainable' from 'unsustainable', to diagnose 'unsustainable' social pathologies and to construct a normal 'sustainable' course of action. How sustainable development strategies and sustainable development indicators define and divide 'sustainable' from 'unsustainable' is therefore integral to the legitimate application of state power (taxation, compulsion, detention, expulsion and violence) to those not complying with these 'sustainable' development norms.

2.2. Accounting and governmentality

Most of the literature on social and environmental accounting has focussed on external corporate social and environmental reporting (Thomson, 2007) and different theories have been used to theorise this aspect of social and

Table 1
Dean's (1999, 2007) typology of government styles

	Sovereign power	Disciplinary power	Biopower	Liberalism	Authoritarian liberalism
Objective of government	To maintain the power of the sovereign	The right disposition of things, arranged so as to lead to a convenient end	To use and optimise the forces and capacities of the population as living individuals	Guarantee effective working of markets by regulation, respecting the natural law of the economy. Safeguard the liberty of the governed	Establish markets that guarantee freedom from excessive state bureaucracy
Fields of visibility	Geographic territory	Individual body	Population	Civil society; economy as a self-regulating sphere; market as a natural process	Individuals and social groups as entrepreneurs; excessive state bureaucracy; new markets to be established; geographic territory; hyper-securitisation; threats and exemptions
Techniques of government	Prescriptive norm codified in law	Prescriptive norm operationalised by discipline, control and surveillance	Apparatus of security; norm as statistical average; regulation	Govern according to the natural laws of the market and civil society; market incentives; apparatus of security	Markets; technologies of performance: benchmarking, audit, devolved budgets, technologies of agency: new contractualism, measurable objectives; technologies of citizenship: deliberative spaces; prescriptive norm codified in law; control and surveillance
Forms of knowledge	Advice to the Prince	Art of government of self (morality); family (economy); the state (politics). reason of state	Science of government; political economy; population of knowledge of human sciences—epidemiology, statistics	Welfare state economics	Competition; state; neoliberal economics; creeping emergency; exceptions to the norm; pre-emptive necessity
Formation of identity	Juridical subject	Normalised subject	Subjects with interest	Free individuals with rights and interests	Secure the social system to allow the 'normal' to flourish.

environmental accounting, e.g., political economy (Puxty, 1991), stakeholder theory (Owen, Hunt, & Swift, 2001), legitimacy actions (Campbell, 2000), emancipatory change (Dillard, Brown, & Marshall, 2005) and democratic accountability (Gray, 2001, 2002). Other studies have investigated the relationship between accounting and attempts to operationalise sustainable development within organisations. These studies have used different theoretical approaches to those adopted in external reporting (e.g. Ball, 2004, 2005; Bebbington & Gray, 2001; Larrinaga-Gonzalez & Bebbington, 2001) but very few have specifically examined social and environment accounting from a governmentality perspective (e.g., Solomon & Thomson, in press).

Prior research on accounting within a governmentality framework offered a number of insights into our attempt to understand sustainable development indicators as a 'sustainable' governing technology. Accounting is recognised to represent, construct and measure the attainment of the objectives/vision of social organisations (Hines, 1989). Others have found accounting capable of problematising the conduct and practices of existing governments and organisational behaviour (Solomon & Thomson, in press). Another important insight is accounting's ability to render entities visible through the application of systematic calculative rationality to facilitate the process of governing (Hoskin & Macve, 1986; Jones & Dugdale, 2001). These entities can include individual workers, products, places, social groups, organisations or nation states (Miller & O'Leary, 1993; Rose, 1991).

Through practices of accounting, different aspects are made visible through numerical representation in centres of calculation and political rationalities operationalised (Hoskin & Macve, 1986; Miller & Rose, 1990). Dean (1999, 2007) discussed numerous examples of governing technologies that rely on accounting techniques. These include the establishment of statistical norms, demonstrating regulatory compliance, taxation, subsidies, market incentives, budgetary control, audit, surveillance and governing by measurable objectives. Thus, accounting practices can be employed in the government of others (Miller & O'Leary, 1987; Miller & Rose, 1990) and of the self (Willmott, 1996).

In addition, accounting forms part of the knowledge construction processes within organisations and is used to measure and judge the effectiveness of other governmental technologies (Boland & Schultze, 1996). Whilst there may be many forms of knowledge within organisations, accounting is used to legitimate knowledge granting it power within governing discourses. Accounting can be used to make processes 'thinkable' and 'governable', but it also can make other processes 'unthinkable' and 'ungovernable'. Accounting therefore possesses definitional powers and operates as a dividing practice (Rose, 1990) establishing institutional norms of acceptable behaviour and thinking. Accounting's ability to classify actions as 'unacceptable' and 'exceptional' and thus requiring some form of intervention makes it a powerful and adaptable technology that can operate in most government contexts.

2.3. Sustainable development indicators: an accounting technology?

Statistical indicators have a long history in identifying, measuring and constructing representations of issues to be governed (Rose, 1991) and indicators have been extensively used as a technique for envisaging and operationalising sustainable development (Mederly, Novacek, & Topercer, 2003). Sustainable development indicators have been produced by nation states (Hanley, Moffatt, Faichney, & Wilson, 1999; Smith, 2002; Guy & Kibert, 1998), international political institutions and local governments (Journel, Duchene, Coanus, & Martinais, 2003; Eckerberg & Mineur, 2003; Spangenberg, Pfahl, & Deller, 2002). NGOs and academics have also developed and promoted sustainable development indicators (e.g., Marks, Abdallah, Simms, & Thompson, 2006; Wackernagel & Rees, 1996) often based on their critiques of existing sustainable development indicators (Anderson, 1993; Bouni, 1998; Constance & Hillier, 1998; Cornelissen, van den Berg, Koops, Grossman, & Udo, 2001; Gray & Wiedemann, 1999; Rennings & Wiggering, 1997).

Sustainable development indicators, in principle, are viewed as a useful technology of governing but their usefulness in practice has been criticised. For example, Rydin, Holman, Hands, & Sommer (2003) concluded that most sustainable development indicators sets are associated with notions of weak[6] sustainable development. Sustainable development indicators have been criticised for including indicators that have no relationship with sustainable development principles and/or actions designed to make organisations or societies more sustainable. Selecting sustainable development indicators is an underspecified, problematic political process (Journel, Duchene, Coanus, & Martinais, 2003; Mederly, Novacek, & Topercer, 2003; Rydin, Holman, Hands, & Sommer, 2003).

[6] In context of this paper we associate weak sustainability with ecological modernity (see Section 2.4). Rydin, Holman, Hands, & Sommer (2003) specifically use the term 'weak sustainability' but there is very little difference between their use of 'weak' and our use of ecological modernity.

Similar concerns have been expressed about social and environmental accounting. Accounting technologies are often seen to legitimate businesses' belief in the sustainability of their operations, (Brown & Deegan, 1998; Campbell, 2000; O'Donovan, 2002); to promote 'a business as usual' agenda (Larrinaga-Gonzalez & Bebbington, 2001); or to convey weak versions of sustainable development (Bebbington & Thomson, 1996). Many have reported upon the inability of social and environmental accounting to challenge neo-classical ideals, overcome business hegemony, the danger of managerial capture and the difficulty in developing alternative accountings which offer different conceptions of "nature", "society" and "business success" that are aligned with sustainable governing.

Whilst sustainable development may be generally understood in an abstract sense, how it is incorporated into practices of government may differ across time and space. The operationalisation of sustainable development is likely to emerge from a contested local political context (Beck & Wilms, 2004) and sustainable development indicators may be implicated in defining sustainable development. We argue that sustainable development indicators as a numeric calculative technology share many of the characteristics of accounting discussed in Section 2.2.

Therefore sustainable development indicators can render visible certain phenomena in a numerical form facilitating governing at a distance, whilst obscuring other attributes of sustainable development. Sustainable development indicators may be implicated in problematising current policies, programmes and actions of government and justifying intervention in pursuit of an idealised vision of a sustainable society. Transitions to a sustainable state will be affected by this problematisation process, which in turn is reflexively related to this idealised vision, which is in turn affected by sustainable development indicators. Sustainable development indicators are potentially a powerful government technology to establish 'sustainable' norms of acceptable behaviour and to divide actions into 'sustainable' or 'unsustainable' as a precursor to government intervention. Therefore, it is important to examine the relationship between sustainable development strategies and sustainable development indicators, in particular the extent to which the indicators represent and are aligned with the governing vision, practices and rationalities of the sustainable development strategy. Consequently, we suggest the analytics of government framework as an appropriate method to uncover the extent of this alignment.

2.4. Evaluating the 'sustainability' of sustainable development strategies and sustainable development indicators

As discussed in Section 2.3, sustainable development indicators may be influential in governing any transition to sustainable development. However, this impact (positive or negative) will be contingent upon the alignment of rationalities between sustainable development indicators, sustainable development strategy, specific governmental context and generally held understandings of sustainable development. To help understand this influence we require a conceptual typology of 'sustainable' governing to describe and classify the 'sustainability' of sustainable development strategies and sustainable development indicators. We constructed this typology by building upon Oels's (2005) application of Dean's (1999) analytics of government framework to examine governmental discourses related to climate change. Her analysis offered a useful heuristic for developing a conceptual typology of governing issues associated with sustainable development.

In her paper, green governmentality was associated with biopower due to the reinforcement of the power of the state and the legitimation of extended government interventions based on science where the environment comprised 'spaces under police supervision, expert management or technocratic control' (Luke, 1999:194). Ecological problems were conceptualised as national security issues requiring governmental interventions, often on a transnational scale, and the creation of regulatory structures to establish ecological security. This ecological security necessitated the rational management by techno-scientific experts of natural resource systems. Green governments discipline through a combination of prescribing normalised individual behaviour via environmentally friendly codes of conduct, and policing and surveying social and biological systems.

By contrast, ecological modernisation problematised the policing of the environment by state institutions, accordingly governments should deregulate and extend the free market in order to solve the ecological crisis in a cost-efficient manner. Rather than normalising behaviour and surveillance, governments should create economic incentives and empower the free-market to facilitate the necessary technological innovation and social change. Ecological modernisation reconceptualised the ecological crisis as an opportunity for innovation and the reinvention of capitalist system (Hajer, 1997). Science and ethics are less important in defining environmental problems which are now reconstituted as cost–benefit calculations consistent with the ideology of advanced liberalism.

Table 2
Typology of sustainable governing (adapted from Oels (2005)

	Green governmentality	Ecological modernity	Sustainable development
Objective of government	To use and optimise the forces and capacities of the population as living individuals	Establish markets that guarantee freedom from excessive state bureaucracy	To govern humanity in accordance with ecological principles sustaining all species and establishing inter and intragenerational equity
Fields of visibility	Population	Individuals and social groups as entrepreneurs; excessive state bureaucracy; new markets to be established	Holistic interdependent ecosytems; interdependence of humanity and nature; global and local
Techniques of government	Apparatus of security; norm as statistical average; regulation	Markets as organising principle of state; technologies of performance: comparison, benchmarking, audit, devolved budgets, technologies of agency: new contractualism, measurable objectives; technologies of citizenship: deliberative spaces	Participatory, transparent democratic processes; avoid technological fixes; systemic management
Forms of knowledge	Science of government; political economy; population as object of knowledge of human sciences—epidemiology, statistics	Competition; state; neoliberal economics	Long-term transdisciplinary evaluations; problematise western production and consumption patterns; post-normal scientific paradigm
Formation of identity	Subjects with interest	Calculating individual entrepreneur of self	Human-natural ecosystems co-dependent and co-evolving

Oels (2005) concluded that these two government responses did not constitute a sustainable government response to climate change, but did not conceptualise a sustainable development style of government. For the purposes of this paper we have speculated on the characteristics of a sustainable development government style reinterpreting, using analytics of government, the sustainability framework used in Bebbington & Thomson (1996).[7] Our typology of the 'sustainability' of sustainable government is presented in Table 2 and will be used characterise the 'sustainability' of Choosing Our Future and its sustainable development indicators.

We recognise that as different government styles come to dominate within a particular space–time configuration they do not totally replace the visibilities, technologies, knowledge and identities of previous forms of government. Therefore, at any point in time and space the characterisation of sustainable governing will reflect the complex nature of the sustainable development and the historic practices and rationalities that pervade current forms of government. Therefore any examination of practices and rationalities of government observable in sustainable development strategies and sustainable development indicators should consider the extent to which they reflect past, present or new programmes and styles of government.

2.5. *Developing our analytical framework*

The analytical process adopted in this paper comprises of a number of key elements. It involves consideration of the wider governmental context within which the sustainable development strategy was embedded. In this case we have adopted Dean's (2007) conceptualisation of authoritarian liberalism as representing the governmental context for Scotland in the early part of the 21st century. We then deconstructed Choosing Our Future and its sustainable development indicators into their objectives, fields of visibility, techniques of government, knowledge forms and identity construction. We used Dean's typology of government styles to characterise and examine the (mis)alignment of the practices and rationalities of governing between sustainable development strategy and sustainable development indicators with reference to the forms of government as outlined in Table 1. We also evaluated the 'sustainability' of

[7] Which was adapted from the work of Redclift (1987), Grey, Bebbington, & Walters (1993) and Turner (1993).

the strategy and indicators using our extension of Oels (2005) as outlined in Table 2. We also analysed the sustainable development indicators using insights from prior governmentality examinations of accounting (Gouldson & Bebbington, 2007; Hopwood & Miller, 1994; Hoskin & Macve, 1986; Miller & O'Leary, 1987; Miller & Rose, 1990; Neu, 2000; Rose, 1991).

An analytics of government framework based on governmentality is appropriate in this empirical context for a number of reasons. Firstly, it is an established theory for examining financial reporting and management accounting practices within organisations (Boland & Schultze, 1996; Miller & O'Leary, 1987; Miller & Rose, 1990; Willmott, 1996) and we are interested in the internal and external uses of sustainable development indicators. Secondly, it has been used to investigate how businesses and political institutions have incorporated sustainability into their management/governing processes (Dean, 2007; Gouldson & Bebbington, 2007; Hajer, 1997; Luke, 1999; Oels, 2005). Thirdly, it offers additional insights in investigating and analysing the multiple dimensions of governing and multiple uses of specific technologies of government (Dean, 2007; Oels, 2005). Fourthly, a governmentality approach can be used to analyse the wider political context (Dean, 2007; Foucault, 1979, 1981, 1986, 1991a,b, 1993) within which the sustainable development strategy and sustainable development indicators are located.

3. Research methods

The empirical evidence used in this paper was drawn from a wider longitudinal analysis where we applied the analytics of government framework to a number of key strategy documents and sustainable development indicators reports produced by the Scottish Executive. This paper was based upon a critical reading of Choosing Our Future and related documents and websites. Choosing Our Future was chosen to be the focus of this paper because it was the most comprehensive of all the sustainable development strategies. At the time of writing it was the official Scottish sustainable development strategy and reports using its sustainable development indicators were regularly published.

The search for relevant sustainable development documents was conducted periodically on the Scottish Parliament and Scottish Executive websites and the documents we selected for analysis are listed in Table 3. The documents were analysed in four stages. First, a cognitive map of the content of each document was created. Second, these individual maps were reviewed to derive a common cognitive mapping structure and each document was remapped using this common structure. Third, the maps were *re*-presented using key elements of the analytics of government framework. These elements were: the objective and vision of the document, problematisations contained within, fields of visibility, techniques of government, forms of knowledge, and identity formation. Fourth, these revised maps were overlaid and interpreted using the characterisation of practices and rationalities of government as presented in Table 1.

We then examined the nature of the possible dividing practices contained within the sustainable development strategy and sustainable development indicators as to how they operationally defined sustainable development in Scotland. As discussed in Section 2.5 we were concerned with the nature and differences in the definitions of sustainability between the strategy and sustainable development indicators and so we applied a typology of sustainable governing to our data. Finally we analysed the data using insights from the accounting governmentality literature.

Table 3
Documents analysed

Title	Date
Sustainability counts	1998
Down to earth	1999
Meeting the needs	2002
Indicators of sustainable development for Scotland	February 2003
Indicators of sustainable development for Scotland: Progress Report 2004	February 2004
Indicators of sustainable development for Scotland: Progress Report 2005	August 2005
Choosing our future: Scotland's sustainable development strategy	December 2005
Choosing our future: measuring progress on Scotland's sustainable development strategy: sustainable development indicators set	July 2006
Sustainable development indicators website	March 2007 to March 2008
Scottish budget: spending review 2007	November 2007

We recognise that it is not possible to examine all systems of thinking underpinning rationalities of a government through documentary analysis. Our research methods only examined and evaluated those attributes made observable in second order statements from the Scottish Executive. However, this analysis uncovered a number of issues of interest and worthy of further research, for example conducting interviews with those involved in the construction and implementation of Choosing Our Future and its sustainable development indicators. We also intend to examine the media coverage associated with Choosing Our Future (and any subsequent sustainable development strategy) and interview external stakeholders and other relevant actors.

4. Evaluating the evidence

As discussed in Section 2 we adopted a multi-layered analytical framework and this section will be structured according to these different layers. The analysis and evaluation of the data is presented as follows. First, we present our analysis of the sustainable vision, problems and actions of Choosing Our Future. Second, we present our analysis of vision, visibilities and dividing practices of the sustainable development indicators. Third, we analyse the alignment of forms of knowledge in Choosing Our Future and the sustainable development indicators. Fourth, we analyse the alignment between the sustainable development indicators and Choosing Our Future's technologies of government. Finally, we will present our summary of the different layers of analysis.

4.1. Choosing our future—sustainable vision, problems and actions

The vision associated with Choosing Our Future, whilst the most sustainable of the four sustainable development strategies (Russell & Thomson, 2007), was a hybrid of different approaches to sustainable development. Whilst a *Sustainable Scotland* prioritised social justice and equality of opportunity and distribution of resources to its citizens, it was built on strong economic growth, modified to incorporate sustainable development concerns, such as eco-tourism, food-miles and Fairtrade. The natural environment was presented in Choosing Our Future as a resource to be governed to solve humanity's problems. There was some mention of protecting other species and habitats, global inter- and intra-generational equity, but the main thing to be sustained was its citizens.

In Choosing Our Future Scotland was characterised as facing a multitude of threats to the quality of life of Scottish citizens and problematised the life choices of Scottish businesses and citizens. The issues problematised are listed in Table 4. These crises were used to justify government intervention in almost every aspect of Scottish citizens' lives to safeguard them, their neighbourhood, their nation and their planet. Choosing our Future contained an account of a series of impending problems that will behalf Scotland unless individuals, communities, businesses, NGOs and governments 'choose' to take actions to avoid them.

A vision of a *Sustainable Scotland* that attempted to address all of these problems and positioned sustainable development as a model for good government, the objective for a civilised society and a radical change agenda was developed in Choosing Our Future. The strategy provided a comprehensive multi-dimensional definition of sustainable development in the Scottish context that built upon a number of existing programmes and policies as well as some new policies and programmes. The multiple-dimension definition of a *Sustainable Scotland* grouped according to our sustainable government typologies (Table 2) is summarised in Table 5.

Table 4
Issues problematised in Choosing Our Future

Global climate change	Extreme weather	Food shortages	Poverty
Social exclusion	Polluted air	Water and land	Waste
Physical and mental health problems	Western consumption patterns	Non-participative governing processes	Water scarcity
Social inequality	Low wages	Poor transport infrastructure	Unemployment
Alienated communities	Poor housing	Poor social infrastructure	Low educational attainment
Avoidable deaths	Inefficient industrial practices	Biodiversity loss	Agricultural practices
Inadequate regulatory and planning structures	Legacy of social and ecological degradation	Loss of landscape	History and culture

Table 5
Choosing Our Future—defining a *Sustainable Scotland* (shaded areas represent issues measured by sustainable development indicators)

Green Government	Ecological Modernisation	Sustainable Development
	Polluters pay	
	Green jobs	New accountability concepts
	Use renewable materials and replenish resources	Global impacts of local action
	Individual responsibility for SD issues	Understand planetary prospects
	Seize economic opportunity of SD	Connecting currently unrelated issues and actions
	Productivity	All things have a right to exist
	Better land use	Participative government
Connect and involve	Industry economy both the cause and solution	objective for civilised society
Less importance on shareholder value	Leader in green enterprise	Learning and capacity building
Good stewardship	Nature as an asset	Precautionary principle
strong scientific evidence	Better water use	Live within environmental limits
Clean air , land and water	Personal well being	Holistic thinking
Taking care of the needs of all	Sustainable and profitable food and drink	Radical change
Good government	Prosperous future for all	Complex of irreducible issues
Powerful approach to policy formulation and development	Care about origins of goods & services	Creative, innovative and inspiring
collective responsibility for SD issue	Eco-tourism	Maintain cultural inheritance and diversity
Wise use of resources	Best use of finite resources	Local based solutions
Unimpaired environment	Need for economic growth	SD at the heart of sound governance
Respecting & protecting natural heritage & resources	Recover what is useful	Long term thinking
Meet global treaties	Strong, healthy and just society	Prosperity not at expense of others
Less selfish more caring	Strong, stable and prosperous	Sustainable communities
Secure prosperity with less energy	Low carbon economy	Eco-justice
Social inclusion, cohesion, development	Renewable energy	Biodiversity

A *Sustainable Scotland* was constructed from a hybrid of sustainable government styles with a predominance of elements of ecological modernisation. Despite containing a number of radical elements there was a lack of an overarching concise conceptual definition of sustainable development in Choosing Our Future.

The Scottish Executive's implied definition of sustainable development appeared to emerge from existing programmes of government. This pragmatic political definition did, however, create the potential of conflict when attempting to operationalise the strategy, because the lack of an overarching sustainable development definition created difficulties in identifying the sustainable dividing practices and how norms of sustainable living were established. This lack of conceptual clarity risked every action capable of being presented as 'sustainable' or 'unsustainable', because dividing practices have effectively been delegated into specific programmes and technologies of government, including the sustainable development indicators.

4.2. Choosing Our Future's sustainable development indicators; vision, visibilities and dividing practices

Prior to the adoption of Choosing Our Future as the official sustainable development strategy in 2005 the Scottish Executive used a set of 25 sustainable development indicators to measure progress towards a *Sustainable Scotland* (Scottish Executive, 2003, 2004, 2005a). However, these indicators were not wholly adopted as the appropriate indicators to monitor delivery or measure the progress of Choosing Our Future. Only 14 of these indicators were included in Choosing Our Future's set of 22 sustainable development indicators (for a full list see Table 7). A number of new indicators were introduced; % of adults rating their neighbourhood as a good place to live, % of schools registered as eco-schools, % of schools awarded green flag status. Different indicators were introduced that could be seen to modify existing indicators;[8] % municipal waste recycled, children living in low income households, % adult employment, GDP per capita, composite indicators of bird populations. Certain indicators were dropped from the indicator set and these were road freight intensity, electricity consumption, gas consumption, % of journeys to work not using a car, % of households in fuel poverty, % of households within 6 min walk of a bus service. The indicators dropped measured road traffic, public transport, energy affordability and consumption, which were surprising omissions in the context of a sustainable development strategy.

The Cabinet Sub-Committee of Sustainable Development (2006) had proposed four new indicators that reflected sustainable development thinking (carbon emissions, social wellbeing, social justice, environmental equality) but none of these indicators were included in sustainable development indicators.[9] However, sustainable development indicators were recognised as an important technology in implementing Choosing Our Future's strategy.

> The Cabinet Sub-Committee will monitor delivery, supported by quarterly reports in relation to the strategy's actions and indicators. The Sustainable Development Commission (SDC) will be invited to contribute on an annual basis to this monitoring process. All these reports will be published on the Executive's website. Choosing Our Future (Scottish Executive, 2005b:75)

> Progress will be measured against a broad set of indicators that capture the different dimensions of sustainable development. This will include growth in per capita GDP as the most widely recognised indicator of economic progress. GDP is not the only measure of success, however, and we are committed to measuring progress against a wide set of indicators that reflect our social and environmental as well as economic goals. **Choosing Our Future** (Scottish Executive, 2005b:76).

Sustainable development indicators were identified as critical in monitoring, measuring, communicating success or failure of the implementation of Choosing Our Future. This strategy did, however, recognise problems with sustainable development indicators and gave an undertaking that they would be continually reviewed. We used the latest sustainable development indicators set[10] which remained unchanged since the first measuring progress report on Choosing Our Future in 2007. We noted that many of the sustainable development indicators predated the Scottish Parliament and all indicators were in existence, in some form, prior to Choosing Our Future.

There would appear to be a lack of alignment and scope between the sustainable development vision of Choosing Our Future and the sustainable development indicators. Only a minority of the issues identified with a *Sustainable Scotland* formed part of this accounting process and any account of progress towards a *Sustainable Scotland* based on these sustainable development indicators would be far from complete and obscured most aspects of sustainable development government. The shaded cells in Table 5 illustrate the extent to which these indicators 'measured' the sustainable development strategy. Two observations are apparent from Table 5. Firstly the number of issues not measured by the indicators and secondly, the bias towards measuring issues associated with ecological modernity.

Within Choosing Our Future we identified over 60 different fields of visibility which were measurable and could be regarded as centres of calculation (Miller & Rose, 1990). Examples of these visibilities are contained in Table 6.

[8] The previous indicators were, respectively, % total household waste recycled, children living in workless households, % adult unemployment, CO_2 emissions/GDP, Biodiversity Action plans steady or improving.

[9] Of these four indicators only the carbon emission indicator has been included in the proposals for the SDI set to be used in conjunction with the latest Sustainable Development Strategy contained within Spending Review 2007.

[10] www.scotland.gov.uk/Topics/SustainableDevelopment/measuring-progress.

Table 6
Examples of visibilities within Choosing Our Future

The individual	Households	Neighbourhoods	Communities
Scottish nation	Rest of the world	The market	Regulators
Government	Land	Seas	Rivers
Fish	Birds	Air	Flora and fauna
Green spaces	Parks	Coastline	Scenery
Food	Partnerships	Engagements	History
Education	Nature	Oceans	Knowledge

We also identified in Choosing Our Future dividing practices associated with these visibilities. For example, the individual was divided into employed/unemployed, sick/healthy, educated/uneducated, informed/uniformed welfare recipient/consumer, criminal/law-abiding, anti-social/social, old/working/young. Other examples include households divided into fuel poor/fuel rich, sub-standard/ above standard, energy efficient/energy inefficient and low income/ high income; and government institutions as international/national/local, participative/non-participative, opaque/transparent, responsive/unresponsive, fragmented/holistic. Table 6 also makes reference to non-human fields and again there were 'sustainable/unsustainable' divisions within these visibilities for example; polluted/non-polluted rivers, threatened/non-threatened bird species.

Within Choosing Our Future there was a broad range of potential centres of calculation linked to specific attributes of a *Sustainable Scotland*. Each field of visibility had its own context-specific 'sustainable' dividing practice; however, these appeared to be embedded within the issue to be governed and historic governing practices rather than any overarching sustainable development rationality pervading Choosing Our Future. Although many of these dividing practices were relevant to sustainable development the problems they were initially designed to address predated the Scottish Parliament and their strategy documents, e.g., air pollution, polluted rivers, pesticides and agriculture, crime, anti-social behaviour, poor health.

Although we identified over 60 fields of visibility in Choosing Our Future the indicators set only rendered visible through measurement 13 fields of visibilities. Table 7 contains our analysis of the definition of sustainable development, fields of visibilities and dividing practices implicit in the sustainable development indicators intended to publicly account, measure progress and 'capture' the different dimensions of sustainable development.

Comparing the visibilities and dividing practices between those contained within Choosing Our Future with those privileged by their inclusion in the sustainable development indicators set demonstrated a lack of alignment and coherence as well as the exclusion of many fields of visibilities. These fields of invisibilities were excluded from the calculative gaze of the sustainable development indicators and effectively discounted from official measures of progress. These fields of invisibility included Public Transport, Land, Global Impact and Buildings, which are all generally regarded as critical to any sustainable development strategy. The dividing practices associated with the sustainable development indicators fell far short of the sustainable development envisioned in Choosing Our Future. As a result the sustainable development indicators created a problematic, partial and distorted account of sustainability policy, plans and programmes.

4.3. Choosing Our Future and sustainable development indicators: legitimating and constructing forms of knowledge

In Choosing Our Future the rationality and received wisdom of decision-makers in government, business and citizens was problematised and presented as a major obstacle to change. Many of the 'solutions' were designed to bring about a systemic change in the collective knowledge and understanding of Scotland's existential reality in order to transcend its current unsustainability. A number of solutions attempted to re-educate all levels of Scottish civil society to change how they think and 'mainstream' sustainable development thinking. These educative solutions included: reviewing school curricula, sustainable development training for policy makers, knowledge exchange programmes with developing world, promoting fair-trade, publicity campaigns, consumer information systems, transport appraisal guidance.

Diverse forms of knowledge were recognised and legitimated in Choosing Our Future. Table 8 lists examples of these different types of knowledge. The narrative of Choosing Our Future can be interpreted as interdisciplinary and inclusive in the forms of knowledge attributed to sustainable development.

Table 7
Choosing Our Future's SDI set—visibilities and dividing practices

Unsustainable	Visibilities	Sustainable
More municipal waste volume; smaller % municipal waste recycled	Waste	Less municipal waste volume; larger % of municipal waste recycled
More air quality management areas in cities; more greenhouse gas emissions (net); smaller % of electricity consumed that is generated from renewable sources	Air emissions	Less air quality management areas in cities; less greenhouse gas emissions (net); larger % of electricity consumed that is generated from renewable sources
More vehicle kilometres	Road traffic	Less vehicle kilometres
More kilometres of rivers identified as poor or seriously polluted	Water	Less kilometres of rivers identified as poor or seriously polluted
Lower life expectancy; lower healthy life expectancy; smaller % of population of working age; smaller % of those aged 16+ who have given up time on an unpaid basis for an organisation	Population	Higher life expectancy; higher healthy life expectancy; larger % of population of working age; larger % of those aged 16+ who have given up time on an unpaid basis for an organisation
More homeless households; more children living in low income households	Households	Less homeless households; less children living in low income households
Larger % of 16–19s not in education, employment, training; smaller % employed	Employment	Smaller % of 16 – 19s not in education, employment, training; larger % employed
Lower % of adults rating their neighbourhood as a good place to live	Community	Higher % of adults rating their neighbourhood as a good place to live
Higher recorded crimes	Security	Lower recorded crimes
Lower GDP per capita	Market	Higher GDP per capita
Smaller % of schools registered as eco-schools; smaller % of schools awarded green flag status	Learning	Larger % of schools registered as eco-schools; larger % of schools awarded green flag status
Smaller % of commercial marine fish stocks at full reproductive capacity	Marine life	Larger % of commercial marine fish stocks at full reproductive capacity
Reduction in composite indicators of bird populations	Birds	Increase in composite indicators of bird populations

Table 8
Examples of forms of knowledge in Choosing Our Future

Morality	Governance of self	Governing families	Governing households
Role of state	Statistical measures of the health of citizens	Scientific knowledge	Political economy
Welfare state economics	Competition	Profitability	Neo-liberal economics
System thinking	Destructive power of nature	Weather	Long-term diagnoses of sustainability crisis
Critical reflection on current western life-styles	Precautionary principle	Global impact of Scottish citizens	Knowledge of the life of others
Knowledge of our eco-system	Reconceptualising waste	Culture	Art
History	Ethics	Holism	Inequality

Given the interdisciplinary nature of knowledge and the prominence of knowledge reform in Choosing Our Future it would be expected that the sustainable development indicators would reflect these diverse knowledge sets, challenge the current knowledge set and measure the impact of these educative technologies.

Table 9 represents our analysis of the 'knowledge' represented by the sustainable development indicators using the knowledge types associated with government styles (see Table 1). Predictably the sustainable development indicators privileged knowledge expressed in numerical form and excluded almost all of alternative/qualitative knowledge sets contained in Choosing Our Future. Despite the prominence of educative reform in Choosing Our Future it was largely absent from the sustainable development indicators set. Exceptions were the registration of eco-schools and green flag award schemes.[11] The knowledge set legitimated by the sustainable development indicators would appear to perpetuate

[11] Eco-Schools is an international award programme that guides schools on their sustainable journey, providing a framework to help embed these principles into the heart of school life. A green flag award designates that the school has met all of the schemes requirements (see www.eco-schools.org.uk).

Table 9
Forms of knowledge implicit in Choosing Our Future SDI set

Disciplinary/authoritarian liberalism	Government of self	Life expectancy Healthy life expectancy % of those aged 16+ who have given up time on an unpaid basis for an organisation
	Governing the family	Homeless households Children living in low income households
	Governing of State	Recorded crimes Population age profile
Biopower/authoritarian liberalism	Science of governing	% of adults rating their neighbourhood as a good place to live Vehicle kilometres
	Political economy	GDP per capita % employed
	Scientific–natural science	Air quality management areas Kilometres of rivers identified as poor or seriously polluted % of commercial marine fish stocks at full reproductive capacity Composite indicators of bird populations
Liberalism	Welfare state economics	% of 16–19s not in education, employment, training Municipal waste volume % municipal waste recycled
Sustainable development	Precautionary principle	% of schools registered as Eco-schools % of schools awarded green flag status Greenhouse gas emissions (net) % of electricity consumed that is generated from renewable sources

the received wisdom that was problematised in Choosing Our Future and this arguably reinforced a major obstacle to the attainment of a *Sustainable Scotland*. Our analysis also suggests that the knowledge legitimated was consistent with Dean's authoritarian liberalism.

4.4. Sustainable development indicators and technologies of government

A wide range of government technologies were associated with the transition to a *Sustainable Scotland* in Choosing Our Future, however, most were existing government programmes re-branded as a component of a sustainable development strategy. The process of producing of *Choosing Our Future* appeared to enable the Scottish Executive to revisit its current practices and to *re*-present them within their revised definition of sustainable development as well as recognise gaps to be filled. Many existing 'sustainable development' programmes were underpinned by different political rationalities and retrospectively co-opted into Choosing Our Future rather than policies that emerged from Choosing Our Future. Hence, there was an inconsistency of the rationality of these technologies and collectively they did not create a coherent rationality of a *Sustainable Scotland.* Most of these government programmes were already measured by indicators and when they were re-branded as 'sustainable development' technologies their indicators were also re-branded as 'sustainable development' indicators (see also Section 4.2).

The governing technologies and action points described in Choosing Our Future could be linked with different styles of government. These included; security technologies, regulatory technologies, surveillance, normalisation, education, establishing new markets and market incentives. A number of government actions were security technologies designed to avert the many of the crises associated with unsustainable development, for example, Climate Change Programme and River Basin Management. Many were public investment programmes to provide clean water, air, shelter, safety and nutritional food for the Scottish population.

Within Choosing Our Future extensive reference was made to regulatory technologies often using the rhetoric of National Planning, Obligations and Directives. These regulations were based upon scientific norms of acceptable level

of pollutants/contaminants, surveillance and sanctions.[12] Most of these technologies contained authoritative definitions of 'sustainability' with surveillance and disciplinary sanctions for non-compliance.

Market-based technologies were prominent in government solutions, despite their problematisation in Choosing Our Future. These included the creation of new markets for 'sustainable' products and services and changing consumers' product knowledge in order to reform purchasing behaviour.[13] Another set of technologies incentivised the market to become more sustainable.[14] New contractualism,[15] partnerships[16] and networked forms of governance[17] were also emphasised.

Other technologies sought to establish acceptable 'sustainable' behaviour through 'sustainable' processes, surveillance and audit. Many of these initiatives were normalising technologies intended to define and promote good 'sustainable' practices, often these technologies incorporated elements of certification to publicly demonstrate sustainable behaviour.[18] Thus, these technologies were rendering visible and governable aspects of conduct according to specific norms of sustainable development. A number of decision-making processes were redefined to make explicit how sustainable development was incorporated into government decisions, e.g., strategic environmental assessment on all major policies, accounting for sustainable development into government spending plans and incorporating sustainable development criteria in best value assessments. These decision processes allowed decision makers to prove the 'sustainability' of their actions by demonstrating they followed due 'sustainable' processes.

Given the range of solutions contained in Choosing Our Future it would be reasonable to expect the sustainable development indicators to cover the spectrum of governing technologies that they purport to represent. Table 10 links the sustainable development indicators with the technologies of government associated with government styles (see Table 1).

Most of Choosing Our Future's governing technologies were capable of measurement yet most were excluded from the sustainable development indicators. Only a sub-set of these government technologies were measured and incorporated into any evaluation of progress towards a *Sustainable Scotland*. Any account of the impact of these government programmes based on these indicators would be incomplete and distorted.

4.5. Summary of empirical findings

If sustainable development indicators were part of a calculated direction of human conduct as suggested in the governmentality literature then there would appear to be a number of significant limitations with these sustainable development indicators. Governors' analyses of the problems to be solved in pursuit of their sustainable utopia were clearly articulated in Choosing Our Future, however, our analysis identified significant differences between the vision operationalised via the indicator set and the vision articulated in the strategy document. The institutionalisation of a green governmentality/ecological modernity version of a *Sustainable Scotland* by the sustainable development indicators seemed to be in conflict with the sustainable development vision contained in the strategy document.

Previous governmentality studies have identified problems when human conduct is regulated, controlled, shaped and turned to specific ends through calculative rationalities (Miller & O'Leary, 1987; Rose, 1991, Neu, 2000). In particular problems may arise where there was a misalignment between the political or programmatic rationalities and the governing technologies (Miller, 1990). Our analysis of Choosing Our Future partially uncovered the Scottish Executive's political rationality in relation to sustainable development and what programmes of government would be

[12] For example, Food Safety Agency, Air Quality Management Areas, Scottish Housing Quality Standards, Building Standards, Planning systems, National Waste Plan, National Transport Plan, Energy Performance of Buildings Directive and Strategic Frameworks for Sea and Coast, Sea Fisheries, Forestry, Energy Efficiency, Renewable Obligations for Energy Producers.

[13] For example, promoting fair-trade products, carbon-offsetting, awareness of waste and packaging, knowledge of the quality of life of developing world producers, food-miles.

[14] For example, green jobs strategy, free bus travel for older citizens, landfill tax, aggregate levy, business, community and household renewable energy incentives.

[15] For example, Regeneration Outcome Agreements, Local Agenda 21.

[16] For Example, regional transport partnerships, community planning partnerships, knowledge exchange partnerships.

[17] For example, development of governance networks and forums, Forum for Renewable Energy Development, community engagement standards, community voice networks.

[18] For example, extending the role of Audit Scotland, Sustainable Development Commission scrutiny sustainable forestry certification schemes, food-labelling, eco-schools green flag awards.

Table 10
Choosing Our Future SDI set and technologies of governing

Prescriptive norm codified in law (sovereign/authoritarian liberalism)	Air quality management areas Kilometres of rivers identified as poor or seriously polluted Recorded crimes % of commercial marine fish stocks at full reproductive capacity Municipal waste volume % municipal waste recycled Composite indicators of bird populations
Apparatus of security based on surveillance and statistical norms (biopower/authoritarian liberalism)	Greenhouse gas emissions (net) % of electricity consumed that is generated from renewable sources Vehicle kilometers Life expectancy Healthy life expectancy Population age profile Homeless households Children living in low income households % of 16–19s not in education, employment, training
Natural laws of the market and civil society (liberalism)	GDP per capita % employed
Technologies of citizenship (advanced liberalism)	% of adults rating their neighbourhood as a good place to live % of schools registered as eco-schools % of schools awarded green flag status % of those aged 16+ who have given up time on an unpaid basis for an organisation

enacted to pursue such ends. Accounting, as a technology of governing, should complement programmatic and political rationalities especially given accounting's ability to objectify and make visible processes and activities to be governed (Hoskin & Macve, 1986). Accounting makes policies, processes and activities 'governable' and 'thinkable', however, Choosing Our Future's sustainable development indicators only allowed partial aspects of sustainable development to be susceptible to evaluation, calculation and intervention. The aspects of sustainability that were not measured by sustainable development indicators were thus less likely to be subject to problematisation, evaluation or intervention. Our analysis suggests that the political and programmatic rationalities of Choosing Our Future and the sustainable development indicators were not reflexively related and they appeared to be significantly misaligned.

The sustainable development indicator set was largely consistent with the calculative knowledge set associated with the authoritarian dimension of authoritarian liberalism, as were the programmes of action. Most of the sustainable development indicators had a long history of use in governing Scotland (as part of the UK) and in terms of representing the variety of forms of knowledge associated with Choosing Our Future the sustainable development indicators were extremely limited and potentially problematic.

We concluded that the sustainable development indicators legitimated and perpetuated the problematic knowledge set (from a sustainability perspective) and was unlikely to challenge its dominance. Our analysis identified sustainable development indicators as possessing powers of definition, dividing practice, establishing norms of sustainable development activities and creating thresholds for the enactment of governmental intervention, discipline and/or sanctions. We argue that it was not possible to effectively measure progress towards a *Sustainable Scotland* using these sustainable development indicators, but they could calculatively capture and distort the sustainable development governing process.

5. Conclusions

The paper was motivated by the possibility that sustainable development indicators could negatively impact upon the integration of sustainable development into the everyday governing of Scotland. A major concern was how effectively accounting technologies could represent this complex multi-dimensional and interdisciplinary concept. These concerns were grounded in findings from prior research into social and environmental accounting, sustainable development indicators and governmentality studies of accountancy.

Our review of prior research suggested that sustainable development indicators could calculatively capture sustainable development and suppress significant fields of visibilities, forms of knowledge and technologies of government. This was important in authoritarian liberal regimes of government where sustainable development indicators could play an important role in dividing 'sustainable' from 'unsustainable', diagnosing 'sustainable' disorder and pathologies, constructing 'sustainable' course of actions and legitimating the use of state power for non-compliance. Sustainable development indicators also have the power to exclude actions and incorrectly classify 'unsustainable' actions as 'sustainable' exempting them from government intervention and thus perpetuating unsustainable behaviours.

Similar problems were observed in research into accounting practice and sustainability, for example problematically legitimating business' alleged belief in the sustainability of their operations, promoting the business as usual agenda, inability to challenge neo-classical ideals, overcoming advanced liberal hegemony, and the danger of managerial capture. If sustainable development indicators are to support a transition towards sustainable development we argue that they must incorporate and represent conceptions of "nature", "society" and "success" that are aligned with sustainable development governing.

In order to investigate these issues we used a multi-layered documentary analysis. This involved consideration of the wider governmental context, a deconstruction of sustainable development strategy and sustainable development indicators into analytics of government components, a characterisation and examination of the alignment of the practices and rationalities of governing between sustainable development strategy and sustainable development indicators, an evaluation of the 'sustainability' of the strategy and indicators and interpreting the sustainable development indicators as a technology of government.

Our evaluation of Choosing Our Future confirmed most of the criticisms and problems identified in our literature review as to how sustainable development indicators monitored delivery, measured progress, accounted for and captured sustainable development. Despite the sustainable vision expressed in Choosing Our Future our analysis suggested a number of significant obstacles to achieving that vision of a *Sustainable Scotland*, which included sustainable development indicators. Within Choosing Our Future we identified over 100 government programmes associated with a *Sustainable Scotland*, but the overall assemblage of government programmes was closer to authoritarian liberalism rather than our speculative description of sustainable development governing. Our interpretation of Choosing Our Future was that of a politically pragmatic strategy that re-branded established government technologies within a programme of incremental reform that fell short of sustainable development. This approach reflected the legacy of past governments and their vision of the 'reality' of contemporary governing, but also created the potential for new forms of governing to emerge.

However, this potential may be limited by the accounts produced using sustainable development indicators. The sustainable development indicators were significantly misaligned with the sustainable development strategy and obscured or ignored critical aspects of the sustainable development strategy. Many of these indicators were the legacy of past government programmes and could perpetuate previous unsustainable actions. We argue that it was not possible to effectively measure progress towards a *Sustainable Scotland* using these sustainable development indicators, but they could calculatively capture and distort the sustainable development governing process. We suggest that analytics of government provides a theoretic approach to diagnose and problematise specific sustainable development indicators in order to enable an informed and structured discourse on the composition and role of sustainable development indicators in order to avoid this capture and the legitimation and perpetuation of unsustainable actions.

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