Chapter 7

Implications for Strategic Management of the Policy System

Introduction

In the previous chapter, the causal maps that represented the system of problems described by ten study participants were presented. In addition, the results of the interpretive analysis aimed at identifying which problems, from among the system of problems, were potentially critical leverage points or constraints in the policy system. The final aim in the interpretive analysis was to explore the implications of the identified critical leverage points and constraints for the strategic management of the policy system. This aim is addressed in this chapter.

To begin with, a series of tables (Tables 7.1 through 7.10) is presented, one for each causal map. In the tables critical constraints are represented in bold capitalised font. In addition, critical leverage points and constraints are categorised according to five organisational management themes that became apparent when their properties were compared across causal maps. These themes related to fundamental principles, building capability, stakeholder engagement, inter- and intra-agency uptake and Ministerial influence.

Fundamental principles reflect key assumptions and values that delineated what behaviours were possible and desirable in the policy system. In the vocabulary of Complexity Theory fundamental principles are analogous to initial starting conditions and values. Building capability reflects opportunities and threats to the capacity of the system to either successfully adapt to circumstances or to engender co-ordinated action in pursuit of policy goals. Stakeholder engagement reflects opportunities and threats to the capacity of the system to incorporate the views of stakeholders external to government

agencies into system processes. Inter- and intra-agency uptake reflects a similar idea, but in relation to stakeholders within government agencies. Ministerial influence reflects the dynamics imposed by system interactions with governmental and political forces and pressures.

In the tables, critical leverage points and constraints are also categorised according to whether they would tend to have either a destabilising or stabilising effect on system behaviour. Destabilising effects would tend to throw the system into at least a temporary state of increased diversity, variability, and turmoil, at least until a new pattern of order is established. In consequence, destabilising effects would tend to promote adaptability over integration. Stabilising effects would tend to drive the system toward equilibrium, homogeneity and/or linearity. In other words, stabilising effects would tend to reinforce the existing pattern of order in the system. In consequence, stabilising effects would tend to promote integration over adaptability.

In the remainder of the chapter, illustrative examples are drawn from the tables to highlight some of the system dynamics suggested by participants' experiences. Implications of these dynamics for managing the policy process are then discussed.

A comparison of the table and section headings reported in this chapter reveals that not all of the table headings are section headings. There were two reasons for this. First, as the categorisations represented in the tables were not mutually exclusive, when tracing the effects of particular critical points through the tables a number of categories were traversed. This meant that discussion of particular categories also provided coverage of other categories. Second, when the management implications were the same or similar for more than one critical point, to avoid repetition, one was selected as an illustrative example.

Table 7.1   Critical points for Map 1: DSE head office team responsible for overseeing implementation of NVMF [1]

	Fundamental Principles	Building Capability	Stakeholder Engagement	Inter- & Intra-agency Uptake	Ministerial
D E S T A B I L I S I N G		prioritise funding of DSE native vegetation staff in regions over critical state-wide projects that otherwise wouldn't get funding	DSE team understand what the real issue is for lobby groups		**MINISTERIAL ADVISOR SENDS MESSAGES AS TO WHICH OF THE KEY STAKEHOLDERS HAVE TO BE KEPT SATISFIED**
			DSE team make sure that during the consultation phase particular stakeholders can be satisfied that their position has been considered		**MINISTERIAL ADVISOR PROVIDES DSE TEAM WITH FEEDBACK ON WHAT NEEDS TO BE IN THE POLICY AND WHICH ARE THE IMPORTANT BITS**
					DSE team understand and take heed of political reality
S T A B I L I S I N G	**DSE TEAM OFFER SOLUTIONS TO STAKEHOLDER CONCERNS THAT ARE TOTALLY WITHIN THE POLICY**	**NVMF TO BE IMPLEMENTED THROUGH THE PLANNING SYSTEM**			
		lack of real co-incidence between goals of Built Environment division and goals of B&NR group of divisions (DSE)			

[1] Critical constraints are denoted by capitalised bold font

Table 7.2   Critical points for Map 2: EV and VNPA environmental representative[1]

	Fundamental Principles	Building Capability	Stakeholder Engagement	Inter- & Intra-agency Uptake	Ministerial
D E S T A B I L I S I N G	EV & VNPA WON'T SUPPORT COMPENSATION BECAUSE IT LEGITIMISES A RIGHT TO CLEAR	EV & VNPA aim to have constructive and effective dialogue with other stakeholders, including those who have different points of view EV & VNPA work with vegetation related government programs	State government recognises EV & VNPA as stakeholders representing environmental groups across the state Disagreements in the reference group were recorded rather than resolved		
S T A B I L I S I N G		EV & VNPA LACK RESOURCES EV & VNPA decide on policy position	DSE EMPHASISE THAT GUIDELINES NEED TO BE WORKABLE GIVEN LACK OF RESOURCES DSE EMPHASISE THAT PUSHING TOO HARD ON PREVENTING CLEARING COULD LEAD TO A RURAL BACKLASH		

[1] Critical constraints are denoted by capitalised bold font

Table 7.3 Critical points for Map 3: VFF representative[1]

	Fundamental Principles	Building Capability	Stakeholder Engagement	Inter- & Intra-agency Uptake	Ministerial
D E S T A B I L I S I N G	**VFF'S LONG TERM VISION WILL EVOLVE AS WE TALK TO OTHER GROUPS WITHOUT COMPROMISING OUR FUNDAMENTAL PRINCIPLES**	VFF work on long term vision for native vegetation and its management rather than being critical and reactive to problems	VFF decide to work with government consultation processes or look somewhere else to achieve our objectives		VFF and the Minister work together and agree on an outcome
S T A B I L I S I N G		VFF identify key problems with policy VFF work towards how to fix problems with policy			**MINISTERIAL STATEMENT THAT VFF ARE NOT GOING TO BE ABLE TO CHANGE THE NVMF IN THE SHORT TERM, THE FRAMEWORK HAS BEEN INTRODUCED AND ITS HERE TO STAY**

[1] Critical constraints are denoted by capitalised bold font

Table 7.4   Critical points for Map 4: DSE head office senior manager[1]

	Fundamental Principles	Building Capability	Stakeholder Engagement	Inter- & Intra-agency Uptake	Ministerial
D E S T A B L I S I N G			DSE conducts process for involving interested parties rather than just talking with them		
S T A B L I S I N G	**MAKE SURE THAT INDIVIDUAL NRM PROGRAMS FIT INTO A FRAMEWORK THAT SAYS WHAT THE RIGHTS AND RESPONSIBILITIES OF PRIVATE LANDHOLDERS ARE RELATIVE TO THOSE OF THE GOVERNMENT**	DSE co-ordinate interaction between State and Federal governments on NRM programs DSE work with State, Regional and Federal governments to line up priorities DSE invest in research and development DSE invest in compliance DSE invest in advisory works			

[1] Critical constraints are denoted by capitalised bold font

Table 7.5 Critical points for Map 5: DSE senior policy advisor[1]

	Fundamental Principles	Building Capability	Stakeholder Engagement	Inter- & Intra-agency Uptake	Ministerial
D E S T A B I L I S I N G		what people tend to do now in NRM decision-making is simplify the system way too much rather than deal with the realities of the complex system we're trying to manage recognise the inherent fuzziness of many of the concepts you're working with		MAINTAIN PRACTICALITY OF TOOL	
S T A B I L I S I N G	**PURSUE SCIENTIFIC RIGOUR**	build sophisticated and technically well grounded models and tools harvest reporting and evaluation information rather than existing stand-alone system of reporting and evaluation		tools and concepts become routinely used in decision-making	

[1] Critical constraints are denoted by capitalised bold font

Table 7.6 Critical points for Map 6: CMA strategic management, biodiversity[1]

	Fundamental Principles	Building Capability	Stakeholder Engagement	Inter- & Intra-agency Uptake	Ministerial
D E S T A B I L I S I N G	GOVERNMENT AGENCIES ARE NEVER GOING TO BE ABLE TO CONTROL ALL THE OUTCOMES	develop mechanisms for building trust in process rather than content CMA reflect on appropriateness of targets- are our expectations appropriate about what we're trying to achieve? empower regional community			
S T A B I L I S I N G	STATE AND FEDERAL GOVERNMENT MONITORING AND REPORTING REQUIREMENTS FOCUS ON CONTENT RATHER THAN PROCESS POLITICAL REALITY OF SINGLE ISSUE MANAGING SILOS IN GOVERNMENT AGENCIES	analyse and quantify costs of information management demonstrate resources are finite develop a common currency of reporting outcomes across NRM issues rather than meeting requirements but not providing real information		CMA promote use of a common language across NRM issues and disciplines CMA standardise measurement and data collection methods across NRM issues	

[1] Critical constraints are denoted by capitalised bold font

Table 7.7 Critical points for Map 7: Community representative, CMA biodiversity committee[1]

	Fundamental Principles	Building Capability	Stakeholder Engagement	Inter- & Intra-agency Uptake	Ministerial
D E S T A B I L I S I N G	FLORA & FAUNA WANTED TO PROTECT ABSOLUTELY EVERYTHING RATHER THAN BEING REASONABLE AND CONSIDERING THE NEEDS OF FARMERS	committee interact with scientists	didn't use whole committee for resolving conflict		
		very strong leaders in government departments in region	biodiversity committee learnt to by-pass Flora & Fauna people who were unrealistic in favour of state level people who were more practical and strategic biodiversity committee gave Flora & Fauna more and more examples of cases on the ground- to make them think about how it would actually operate		
S T A B I L I S I N G		State government select pilot region State govt standardise strategy document			

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[1] Critical constraints are denoted by capitalised bold font

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Table 7.8 Critical points for Map 8: DPI regional co-ordinator[1]

	Fundamental Principles	Building Capability	Stakeholder Engagement	Inter- & Intra-agency Uptake	Ministerial
D E S T A B I L I S I N G	focus on getting works on the ground to meet salinity and ecological targets rather than getting more landholders on board	**SUCCESSION PLANNING VOID** regional co-ordinator practical orientated and pragmatic about what can be achieved	regional community set community targets	**EGOS IN DSE HEAD OFFICE AND DPI REGIONAL OFFICE** regional staff develop practical tools	
S T A B I L I S I N G		**DSE HEAD OFFICE ALWAYS WANTING TO GET THINGS RIGHT BEFORE IMPLEMENTATION** **REGIONAL STAFF HAVE TO MAKE DECISIONS NOW** regional staff meet needs of DPI, DSE, CMA		regional staff use policy tools people in different silos work pretty separately	

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[1] Critical constraints are denoted by capitalised bold font

Table 7.9 Critical points for Map 9: DSE native vegetation officer[1]

Fundamental Principles	Building Capability	Stakeholder Engagement	Inter- & Intra-agency Uptake	Ministerial
D E S T A B I L I S I N G	**DSE DID NOT MAKE AVAILABLE TOOLS AND DATA TO LOCAL GOVERNMENT OR MADE AVAILABLE FOR A FEE** **TECHNICAL TOOLS HAVE BEEN DEVELOPED OVER LAST 5 YEARS OR SO HAVE BEEN HELD BACK UNTIL THE OPERATIONAL GUIDELINES COME OUT**	State govt trying to make the two extreme groups VFF & environment groups as happy as possible	NVOs provide a communication link between head office & policy developers & the regions communication goes up the ladder but never back down again messages don't get dealt with local councils have to rethink the way they resource environmental issues local councils see their role in delivering policy as too onerous rather than being keen to take it on	messages are not fed to Minister & Secretary level
S T A B I L I S I N G	**NRM AGENCY STAFF AT BOTTOM OF COMMUNICATION LADDER ARE NOT IN A POSITION OF AUTHORITY**		DSE NVOs build up trust & relationships with local government, other agencies & landholders	

[1] Critical constraints are denoted by capitalised bold font

Table 7.10 Critical points for Map 10: local council environmental officer[1]

	Fundamental Principles	Building Capability	Stakeholder Engagement	Inter- & Intra-agency Uptake	Ministerial
DESTABILISING	**FROM A COUNCIL POINT OF VIEW THE NUMBER ONE PRIORITY OF A ROAD IS FOR ROAD USERS**	**COUNCIL DOESN'T HAVE THE SKILLS OR FINANCIAL RESOURCES TO ADDRESS ENVIRONMENTAL ISSUES WITHOUT EXTERNAL RESOURCES**	landholders draw their own conclusions about what the rules are	Council sets a fairly high benchmark in terms of the environmental side of things	
	Council won't plant in other shires	**NVMF HASN'T BEEN ROLLED OUT TOTALLY- 2 YEARS ON- STILL WAITING FOR WORKING DOCUMENTS**		Council is going for understorey planting-won't cause safety problems- but may create fire fuel problems	
				collaborative problem solving and negotiation in partnership, especially where boundaries are blurred	
STABILISING		environmental officer re-educates engineers, contractors & service providers to value native vegetation	it's a bit like a lottery - don't understand thinking in Canberra	**NVMF REQUIRES OFFSETS TO BE PLANTED IN THE SAME EVC**	
		environmental officer develops and maintains partnerships with CMA, DSE, DPI & local govt.	environmental officer builds relationship with the community	**NVMF REQUIRES OFFSET TO BE ON CROWN LAND IF NATIVE VEGETATION IS REMOVED FROM CROWN LAND**	
		environmental officer & Council educate landholders about their responsibilities, native vegetation and weed management		council planners send all permit applications to referral authorities no ifs or buts, even if it's just one tree	
				environmental officer works in partnership with DSE staff to assess native vegetation on site	
				DSE, council planning staff, environmental officer and other council staff follow up on illegal clearing	

[1] Critical constraints are denoted by capitalised bold font

Fundamental Principles

Destabilising constraints

Six of the fundamental principles identified from the maps were classified as destabilising constraints. These constraints would tend to promote unpredictability in the policy process. They would also tend to reduce the capacity of DSE to exert control over the policy process in pursuit of policy goals. Thus they pointed to conflicts of interests that could lead to outcomes that were qualitatively different to the goals of the policy.

To illustrate, EV & VNPA's refusal to 'support compensation because it legitimises a right to clear' was considered to be a destabilising principle (Map 2, Table 7.2). As related in the previous chapter, EV & VNPA's adherence to this principle contributed to a series of cascading effects on the policy process, such as: the impasse that developed between EV & VNPA and the VFF in the operational guidelines reference group process; the dissatisfaction that EV & VNPA and the VFF felt in relation to the redrafted operational guidelines; the worsening of relations between EV & VNPA and the VFF which led to a shutdown in negotiations between these groups outside the reference group process; EV & VNPA and the VFF pursuing their positions through political lobbying; and the time lags that were experienced between the launch of the NVMF and the release of the operational guidelines. These time lags, in turn, had cascading effects on how the policy was implemented in the absence of the operational guidelines. (These effects will be explained in the section on 'building capability' to follow.)

This example serves to illustrate how a constraint can have a stabilising effect at one level in the system (in this case through its co-ordinating influence on the activities of EV & VNPA) and a destabilising effect on the broader policy system. From the perspective of DSE, which is charged with managing the NVMF policy process, it raises the following management questions. First, in terms of the pursuit of policy goals, does this

constraint introduce desirable or undesirable instability in the system? Second, if the latter is the case, does the potential exist to remove this constraint? If removing this constraint is not an option then what can be done to ameliorate its cascading effects on the course of the policy process?

Possible answers to these questions lie in the critical leverage points and constraints reported in Tables 7.1 to 7.10. Specifically, Table 7.2, representing the critical points for the EV & VNPA representative, points to the possibility of management intervention aimed at resolving rather than simply recording disagreements in the reference group process. It also points to the possibility that the government could decide not to recognise EV & VNPA as stakeholders representing environmental groups across the state. For instance, there may be other environmental groups who are flexible on the issue of compensation. At the same time, the political ramifications of such a decision may outweigh its benefits.

Additionally, Table 7.3, representing the critical points for the VFF representative, points to the option of exploring whether the VFF would be willing to alter its position on compensation. The critical constraint relating to the VFF's fundamental principles suggests that if compensation is not one of VFF's fundamental principles it may be willing to compromise on this point.

Alternatively, it may be possible to reduce the cascading effects of this constraint on the policy system. For example, Table 7.9, representing the critical points for the DSE native vegetation officer, points to the option of reducing the dependency between a compromise being reached between EV & VNPA and the VFF and the release of the operational guidelines.

This example also serves to highlight the difficulty of EV & VNPA's position, if they were not in a position to be flexible in relation to compensation. As noted in the previous chapter, the impasse that developed as a result of this issue in the reference group process left them with little choice but to pursue their position through political lobbying. The

participant related that this was an arena in which EV & VNPA were at a disadvantage relative to the VFF. This, in turn, limited their capacity to influence the government's agenda on native vegetation management.

While the previous example illustrated the destabilising potential of fundamental principles brought to the policy process by external stakeholders, the following example illustrates the destabilising potential of principles brought to the policy process by stakeholders within agencies responsible for managing the policy process. This example relates to the experiences of the community representative on the CMA biodiversity committee with the Flora and Fauna division (DSE), which provided ecological advice to the committee. The critical points relating to this example are presented in Table 7.7. The fundamental principle in this case was the desire of Flora and Fauna to protect all native vegetation. From the participant's perspective this prevented the Flora and Fauna staff from being reasonable and considering the needs of farmers.

This fundamental principle was identified as a destabilising constraint because, as stated, it was inconsistent with the aspects of the NVMF that accommodated the prospect of vegetation removal if it was offset appropriately. Thus, removing this constraint would presumably make a qualitative change to the options that Flora and Fauna staff would be open to. It would also alleviate the destabilising flow-on effects that ensued, which included the biodiversity committee bypassing people who they perceived too unrealistic in order to introduce greater adaptability into the system. Such flow-on effects would have introduced inefficiencies into the policy process as energy was redirected from the intended task, which was to develop a native vegetation plan, to getting around the constraint. From a strategic management perspective this example draws attention to the importance of being sensitive to, and managing conflicting principles within agencies.

Stabilising constraints

Three of the fundamental principles identified from the maps were classified as stabilising constraints as they were principles aimed at enhancing co-ordination, predictability and control in the policy process. These principles included making sure that individual NRM programs fit into a framework that sets down the rights and responsibilities of landholders relative to those of government; making sure that solutions to stakeholder concerns are totally within the policy; and the pursuit of scientific rigour. There was no evidence in the maps to suggest that the first principle created problems for participants. However, there was evidence in the maps to suggest that the application of the second and third principles had unintended effects that created problems for participants. This suggests that the application of the second and third principles introduced instabilities into the policy process.

The problems that the second principle created for participants can be illustrated with reference to the experiences reported by the member of the DSE head office team responsible for overseeing the implementation of the NVMF, the EV & VNPA representative and the VFF representative (Map 1, Table 7.1; Map 2, Table 7.2; and Map3, Table 7.3 respectively). Particularly, the experiences reported by the EV & VNPA representative and the VFF representative suggested that the application of the principle that solutions to stakeholder concerns had to be totally within the policy resulted in these stakeholders concluding that there was little scope for them to influence the content of the policy through the designated consultation processes. This conclusion was exemplified by the VFF representative's statement that they 'never felt like we were part of the process - we felt like we were there to tick off on someone else's agenda.' This conclusion was also consistent with the EV & VNPA representative's observation that DSE recorded disagreements in the reference group process without attempting to resolve them.

Thus, it would seem reasonable to conclude that the DSE team's application of the principle that solutions to stakeholder concerns had to be totally within the policy

reduced the team's capacity to satisfy key stakeholders that each of their positions had been considered during the consultation process (as represented by the critical leverage point in Table 7.1). As a result, neither group supported the operational guidelines that emerged from the process. Destabilising flow-on effects included EV & VNPA and the VFF pursuing their positions through political lobbying; and the time lags that were experienced between the launch of the NVMF and the release of the operational guidelines. These time lags, in turn, had cascading effects on how the policy was implemented in the absence of the operational guidelines (as noted earlier these effects will be explained in the section on 'building capability' to follow).

The problems that the pursuit of scientific rigour created for participants can be illustrated with reference to the experiences reported by the DSE senior policy adviser and the DPI regional co-ordinator (Map 5, Table 7.5 and Map 8, Table 7.8 respectively). Both these participants explicitly recognised a tension between the pursuit of scientific rigour and the practicality of decision-making tools. From the perspective of the senior policy advisor, scientific rigour was necessary for developing sophisticated models and technically well-grounded decision-making tools that would facilitate an understanding among people of the dynamics of native vegetation and management systems. This, in turn, would help people to systematically think through options and possible futures if they do or don't change things. At the same time, this participant recognised that scientific tools and concepts would not become routinely used in decision-making if their practicality was not maintained.

Similarly the DPI regional co-ordinator observed that the tools developed by DSE head office were the result of good thinking in terms of scientific knowledge and theory. However, from this participant's perspective, head office DSE pursued scientific rigour to the extent that it was dysfunctional. This resulted in a tendency on the part of head office to pursue scientific development of decision-making tools to the point where they were scientifically rigorous but too 'complicated, technical and quantitative' to be practical for use in the regions. The response of regional staff, given the imperatives on them to make decisions now, was to develop their own tools for policy implementation,

based on, or in the absence of DSE head office tools. This implied that there was a threshold beyond which the pursuit of scientific rigour introduced inefficiencies into the policy implementation process.

Moreover, the response of regional staff, to develop and apply their own tools for policy implementation, implied that the pursuit of scientific rigour may have had a destabilising effect on policy implementation. The extent of this effect would depend on the degree to which it increased the chances of regional staff developing and applying tools that were inconsistent with intended policy. From a strategic management perspective, mechanisms that would decrease this destabilising potential might include: mechanisms to ensure that reciprocal communication pathways are open between regional DPI staff and DSE staff in head office; mechanisms to monitor the outcomes of decision-making relative to intended policy goals; and mechanisms aimed at developing shared understandings of intended policy.

Regional staff developing and applying their own tools for policy implementation, based on, or in the absence of, head office tools, is an example of a self-organising process. The strategic implications of this are explored in more detail in the 'building capability section to follow.

Critical leverage points

Only one of the fundamental principles identified from the maps was a critical leverage point. This critical leverage point represented the observation made by the DPI regional co-ordinator that they had observed a shift in emphasis in recent years from a focus on getting more landholders on board to a focus on getting works on the ground to meet salinity and ecological targets (Map 8, Table 7.8). Recall that the participant expressed concern that this shift would affect the potential of government agencies to realise goals that were not specifically related to the nominated priorities and targets. Hence, this

critical leverage point serves to highlight a tension between the pursuit of long term policy outcomes and the pursuit of short term measurable outputs.

The point was made in Chapter 1 that the pursuit of short term measurable outputs over longer term outcomes tends to encourage single-loop learning responses. These responses can blind the organisation to disparities that might exist between short term targets and longer term outcomes. Moreover, like incremental strategy, they tend to reinforce the existing ways of doing things when qualitative change may be required. From a strategic management perspective, the tension highlighted by this example calls for mechanisms to facilitate deep reflection and questioning of the goals of the policy process and the means of achieving them. In other words, this example calls for mechanisms to facilitate double-loop organisational learning.

Building Capability

Destabilising constraints

Four critical constraints relating to building capability were classified as destabilising constraints. Three of these destabilising constraints concerned the time lags that were experienced between the launch of the NVMF and the release of the supporting tools and guidelines (Map 9, Table 7.9 and Map 10, Table 7.10). An inspection of Tables 7.8, 7.9 and 7.10 revealed a number of other critical constraints and leverage points in the building capability and inter- and intra-agency uptake categories that related to these time lags. The implication was that the time lags between the launch of the NVMF policy and the release of the supporting tools and guidelines had ramifications for policy implementation that may not have been anticipated, particularly in relation to building capability and inter- and intra-agency uptake. The experiences related by participants suggested that these ramifications worked against an integrated and co-ordinated

approach to implementing the policy. This, in turn, implied that the implementation of the policy was less efficient that would have been the case in the absence of this constraint.

At the same time, the time lags between the launch of the NVMF policy and the release of the supporting tools and guidelines created scope for self-organisation and adaptability in the system. This was evidenced, for example, by the regional staff developing their own tools for policy implementation, based on, or in the absence of, DSE head office tools. This adaptive response could potentially enhance the effective implementation of the policy, to the extent that the tools developed and applied by regional staff are consistent with the NVMF policy goals and to the extent that the tools developed are actually used by regional staff. As was observed by the DPI regional co-ordinator, this adaptive response could also provide an opportunity for the learning experiences in the regions to inform the development of policy and supporting tools in DSE head office. However, it was not apparent from participants' discussions that the opportunities for self-organisation and adaptability that followed on from the time lags between the launch of the policy and the release of the supporting tools and guidelines were part of an intended strategy.

From a strategic management perspective, this suggests that advantages could be realised from the proactive management of self-organisation in the policy process. This would involve monitoring self-organisation that is occurring in the process. The potential then exists for management intervention to encourage self-organising patterns of behaviour that promote desirable outcomes. Conversely, the potential also exists for management intervention to discourage self-organising patterns of behaviour that promote undesirable outcomes. Moreover, the potential exists for management intervention to promote conditions conducive to self-organisation should a need be perceived for enhancing adaptability in particular aspects of the policy process.

To illustrate, one aspect of self-organisation that it might be advantageous to encourage would be the capacity of regional staff to develop and modify policy tools. This would

promote the development of policy tools that are well suited to the circumstances in which they are to be implemented. At the same time, it would also be important to ensure that the policy tools developed are not only well suited to the circumstances in which they are to be implemented but also that they are consistent with the NVMF policy goals. Managing this tension points to a need for the sorts of mechanisms described above in relation to reducing the destabilising potential of the principle of scientific rigour on the policy process. Such mechanisms would include: mechanisms to ensure that reciprocal communication pathways are open between regional DPI staff and DSE staff in head office; mechanisms to monitor the outcomes of decision-making relative to intended policy goals; and mechanisms aimed at developing shared understandings of intended policy.

The experiences of the local council environmental officer, as represented in Map 10 and Table 7.10, suggested one aspect of self-organisation that would be important to discourage. Specifically, they related that, as a result of the time lags in the release of the policy tools and guidelines, landholders were drawing their own conclusions as to what the rules of the policy were. This created barriers to efforts aimed at both educating landholders and encouraging them to comply with the policy. One way of discouraging this aspect of self-organisation might be to develop and make available to landholders some interim information or guidelines in the interests of enhancing landholders' understanding of the intended policy.

An aspect of the policy process where it might be advantageous to promote conditions conducive to self-organisation was pointed to by the participant from the CMA involved in the strategic management of biodiversity (Map 6, Table 7.6). This participant observed that the State and Federal governments' reporting requirements focused on the content of decision-making rather than on process. In this participant's view, this was limiting the capacity of regional agencies to promote uptake of the policy among the regional community and thus their capacity to realise outcomes on the ground that were consistent with policy goals. The solution they proposed was to develop mechanisms for building trust in process rather than content. While the participant did not state explicitly

whose responsibility it was to develop mechanisms for building trust in process rather than content, they did provide as an example 'a random audit' of decision-making processes.

The fourth destabilising constraint relating to building capability was the observation made by the local council environmental officer that the Council did not have the skills or financial resources to address environmental issues without external resources (Map 10: Table 7.10). This was classified as a destabilising constraint because it implied that the Council would have less control over policy implementation than would otherwise be the case. The destabilising potential would depend on the degree to which the external resources sought by council might themselves impose constraints on the capacity of council to implement the policy in ways consistent with its intentions. This potential was evident from the range of organisational contributors to the roadside vegetation plan (including the Trust for Nature, Greening Australia, VFF and the Country Fire Authority) and the dependency of the Council on external funding to support the position of the environmental officer.

However, the experiences that the local council environmental officer related suggested that the destabilising potential introduced by the Council's dependence on external resources did not lead to outcomes that were inconsistent with intended policy. Rather, if anything, it appeared that the partnerships that the environmental officer pursued in response to this dependence contributed to self-organising behaviour that introduced desirable adaptability into the process of policy implementation. This was exemplified by the participant's statement that the members of the partnership worked together 'towards saving it [native vegetation rather than] just sticking to rules or standards.'

This example highlights how a potentially destabilising constraint can play out to produce positive change in policy implementation. From a strategic management perspective this would be an aspect of self-organisation that might be advantageous to encourage, to the extent that the outcomes are consistent with intended policy. To this end, it would also

be important to ensure that mechanisms are in place to monitor how the outcomes of this process evolve over time.

Stabilising constraints

Seven of the constraints relating to building capability were classified as stabilising constraints. The reasoning behind this classification was that such constraints tended to imply an intention to enhance co-ordination, predictability and control in the policy process. Constraints were also classified as stabilising when this intention was not implied but their removal would tend to promote a change in degree, rather than a qualitative change in the established pattern of order. For instance, from the EV & VNPA's representative's discussion of the constraint imposed by EV & VNPA's lack of resources (Map 2 and Table 7.2) it appeared that removing this constraint would not alter the position that EV & VNPA would take on the native vegetation issue, nor would it alter their essential strategies for influencing the government's agenda. Rather it appeared that removing this constraint would enhance their capacity to pursue their current position and strategies.

The constraint posed by State and Federal government monitoring and reporting requirements focussing on content rather than process was also classified as a stabilising constraint on building capability. Recall that this constraint was articulated by the participant from the CMA who was involved in the strategic management of biodiversity (Map 6, Table 7.6). From the participant's perspective, this constraint was grounded in the dominance of the State and Federal governments' commitment to centralised decision-making over their commitment to regional devolution of decision-making power.

The pervasive effects of the constraint posed by the State and Federal government's monitoring and reporting requirements on the CMA were evidenced by the fact that

responses of the CMA to this constraint accounted for the majority of items in this participant's map. This was, in turn, reflected in the critical constraints and leverage points identified for this participant's map. From the participant's perspective, the pervasiveness of this constraint meant that a lot of the CMA's resources were being tied up in providing detailed information to the State and Federal governments that was not helping at all with decision-making in the CMA itself.

From a complexity science perspective, the participant appeared to be describing the existence of a self-reinforcing pattern of behaviour or R-attractor, an example of which was provided in Chapter 4. Recall that such an attractor involves a preoccupation with activities that:

- secure funding;
- support systemic activities;
- avoid and resolve budget crises;
- meet schedules, quotas, or deadlines;
- satisfy those in higher position;
- deflect criticism; and
- prevent restrictions or constraints.

These were the sorts of activities that predominated in the participant's map. Three other participants reported experiences that were consistent with the behavioural patterns reinforced by such an attractor. First was the DSE senior policy advisor's description of an existing stand-alone system of reporting and evaluation (Map 5, Table 7.5). Second was the DPI regional co-ordinator's observation that there had been a shift in focus from getting more landholders on board to meeting shorter-term measurable salinity and ecological targets (Map 8, Table 7.8). Third was the local council environmental officer's observation of the difficulties associated with the application process for securing funding for environmental management projects (Map 10, Table 7.10).

From a strategic management perspective, if such an R-attractor is present in the policy system then it would be important to identify what outcomes are emerging from its

operation. As noted earlier for single-loop learning responses, R-attractors can blind those engaged in the process to disparities that might exist between what the policy process is intended to achieve and what it is actually achieving. Furthermore, their systemic reinforcement of behaviours that are consistent with the status quo would imply a high resistance to change. All this suggests that changing the pattern of behaviours reinforced by such an attractor would require, in all likelihood, investment of considerable resources system-wide over an extended period of time.

Ministerial

Ministerial influence on the policy process emerged as a distinct theme in the causal maps. The power of the Minister to provoke qualitative changes in the policy process appeared to be recognised by a number of participants. In terms of critical constraints and leverage points, Ministerial influence featured in three of the maps.

For the member of the DSE head office team that was responsible for overseeing the implementation of the NVMF, two destabilising constraints were associated with the Ministerial involvement (Map 1 and Table 7.1). These related to the ministerial advisor providing the team with messages as to which of the key stakeholders had to be kept satisfied, what needed to be in the policy and what the important bits were. As reported in the previous chapter, this meant that a key challenge for the team was to balance ministerial concerns against maintaining commitment to implementing the policy and its associated Net Gain objective. The team member explicitly recognised that the risks of failing to achieve this balance were likely to include last minute political decisions aimed at appeasing particular stakeholders. The participant related that these sorts of last minute decisions could fundamentally change the balance of existing policy and jeopardise its implementation.

It was apparent from this participant's map that the team had instituted a variety of ways to manage the destabilising potential of Ministerial influence on the policy. These included ways of reducing the political pressure on the minister such as ensuring that stakeholders were satisfied that their position had been considered in consultation processes, managing the expectations of key stakeholders, understanding the key issues for lobby groups and understanding and taking heed of the political reality. Recall that managing stakeholder consultation processes in a manner that sensibly engaged stakeholders rather than just talking with them was also a critical element in the DSE senior manager's strategy for achieving Ministerial support for the policy (Map 4, Table 7.4).

The DSE team also adopted a team work approach to the Minister's office. This approach involved both providing the minister with information to ensure that they understood what the critical aspects of the policy were from the team's perspective, and responding to feedback from the Minister's office. Some of the activities the team undertook in response to feedback from the Minister's office included shoring up areas of the policy where the Minister had nervousness and speeding up particular aspects of policy implementation.

The critical leverage point relating to Ministerial influence for the VFF representative also suggested that the VFF recognised the destabilising potential of the Ministerial role on the policy process (Map 3, Table 7.3). This point implied that working together with the Minister to agree on policy outcomes would provide the VFF with leverage to change the policy in their favour. This leverage was constrained by the Minister's statement to the VFF that they would not be able to change the policy in the short term as the framework had been introduced and was there to stay. This example highlights how Ministerial influence can provide external stakeholders such as the VFF with a critical source of leverage for invoking change in the policy that aligns better with their interests. It also illustrates how the efforts of external stakeholders to invoke change would be counterbalanced by the efforts of internal stakeholders, such as the DSE team responsible

for overseeing the implementation of the policy, to invoke stability by securing Ministerial commitment to the policy as it stands.

A third example serves to highlight the implications of Ministerial influence for inter- and intra-agency uptake of the policy. This example relates to the experiences of the native vegetation officer as represented in Map 9 and Table 7.9. Recall that this participant observed that a critical constraint on their capacity to implement, and facilitate the implementation by others of the NVMF policy in the region was the fact that agency staff at the bottom of the communication ladder were not in a position of authority. This limited the capacity of regional staff to either change the way they did things in line with policy or change the way that the policy was implemented to better suit local circumstances.

This created an imperative for regional staff to transmit information on the need for change to people higher on the ladder of authority. However, in their experience, communication tended to go up the ladder but not back down again and the required changes did not eventuate. As a result, they could only assume that the people in the position of authority to sanction change, such as the Secretary and the Minister, did not receive the information that regional staff had transmitted. The implication was that, for whatever reasons, the information transmitted by regional staff failed to evoke Ministerial support for change.

From a strategic management perspective, it begins to become apparent that the more the Minister responds to calls for change, the more adaptable the policy system would be to the regional context in which the policy is to be implemented. Similarly, as highlighted in the previous example, the more the Minister responds to the calls of external stakeholders for change, the more adaptable the policy system would be to the political context in which the policy is to be implemented. However, as underlined by the example drawn from the DSE team responsible for overseeing the implementation of the policy, there is a direct tension between maintaining adaptability and maintaining commitment to the implementation of a policy as it stands. Thus, the examples reported

in this section reveal the pivotal nature of the Ministerial role in balancing stabilising and destabilising forces in the policy system.

Summary and Conclusions

In this chapter the strategic management implications of the critical leverage points and constraints identified in the previous chapter were explored. To begin with, critical points were classified into five organisational management themes that became apparent when the properties of these points were compared across causal maps. These themes related to fundamental principles, building capacity, stakeholder engagement, inter- and intra-agency uptake and Ministerial influence. Critical points were also classified according to their potential for destabilising or stabilising effects on system behaviour.

Illustrative examples were then used to highlight some of the system dynamics apparent from participants' experiences. These examples showed that:

- a constraint can have a stabilising effect at one level in the system and a destabilising effect at another
- destabilising constraints can be introduced into the policy process by external stakeholders as well as those within government agencies;
- constraints aimed at enhancing co-ordination, predictability and control in the policy process could have destabilising effects in practice; and
- potentially destabilising constraints can play out to produce positive change and self-organisation in the policy process,

Illustrative examples were also used to show the circumstances under which:

- self-organising processes might contribute to desirable policy outcomes;
- self-organising processes might contribute to undesirable policy outcomes; and
- it might be advantageous to generate scope for self-organising processes where they are not present.

In addition, the experiences of some participants pointed to the existence of an R-attractor in the policy system. This was reflected in participants' experiences of:

- State and Federal government monitoring and reporting requirements focussing on content rather than process;
- an emphasis on achieving short term measurable targets or outputs over long term outcomes;
- stand-alone systems of reporting and evaluation that were detached from the reality and needs of people making management decisions; and
- seeking funding to support policy implementation.

These experiences were reported by participants in various roles and levels of the policy system. Changing the pattern of behaviours associated with an R-attractor would require, in all likelihood, investment of considerable resources system-wide over an extended period of time.

The final section in this chapter related to the Ministerial influence on the policy process. The examples reported in this section revealed the pivotal nature of the Ministerial role in balancing stabilising and destabilising forces in the policy system.

The findings reported in this chapter illustrate how the process of capturing people's perspectives on the policy system through constructing causal maps and identifying critical leverage points and constraints provided a means of understanding the dynamics at play in the policy process. They also provide direction as to the management actions that could be taken to influence the policy process in pursuit of policy goals.

Chapter 8

Conclusions and Implications

Introduction

This thesis was about strategic management in natural resource and environmental policy. The case was made that general theories on strategic, adaptive and integrated management do not account for the complexities and dynamics involved in formulating and implementing particular policies in particular contexts. Hence, the aim in this study was to develop an approach to mapping out the strategically relevant complexities and dynamics at play in a particular policy context. This approach was explored in the context of the Native Vegetation Management Framework (NVMF) in Victoria.

In meeting the aim in the study, insights were sought into the interplay between factors, issues and events that could reduce or amplify system instability, predictability and adaptability. Insights were also sought as to possible ways of interpreting the complexity of the policy system so as to bring into focus the ways in which the system was bounded by key constraining factors as well as identifying possible avenues for strategically intervening in the system at different points for specific purposes. In short, insights were sought into ways of navigating pathways through the policy system in pursuit of policy goals.

Policy Goals

In Chapter 2 it was argued that, because there is no universal agreement on the goals that
government policies should aim to achieve, an integral part of a policy process will be to
balance and integrate multiple and often conflicting goals. The findings reported in the
previous two chapters provided insights into the variety of goals that stakeholders
brought to the NVMF policy process. The findings also provided insights into the
tensions that emerged between the goals of the NVMF policy and those brought to the
policy process by stakeholders.

Specifically, tensions were identified between the policy goals and those of stakeholders
within and among the various agencies responsible for formulating and implementing the
NVMF policy. Some of these tensions related to: the development goals of the Built
Environment division of DSE; the environmental protection goals of the Flora and Fauna
Division of DSE; the pursuit of scientific rigour by DSE scientists; the agricultural
productivity goals of DPI; the road safety priorities of local council; and the community
participation goals of government agencies and staff. Tensions were also identified
between the NVMF policy goals and those of external interest groups, such as the VFF
and EV & VNPA and community representatives. When viewed through the theoretical
perspectives outlined in Chapter 2, a number of these tensions manifest tensions among
the economic, ecological and social perspectives.

In tracing stakeholders' experiences of these tensions and the interactions among them,
the findings showed how they could have destabilising effects on the policy process.
That is to say, they could increase unpredictability in the policy implementation process,
decrease the controllability of the process and lead to outcomes that are qualitatively
different from the policy goals. These destabilising effects were illustrated by the
experiences of the community representative on the CMA biodiversity committee with
the Flora and Fauna division (DSE). The tensions involved in this case were between the

goal of protecting all native vegetation and the goal of reasonably considering the needs of farmers. In this case, the committee in conjunction with state level staff in DSE put together a strategy that achieved containment of the destabilising effects of this tension.

This was not the case, however, for the tension that emerged between the VFF and EV & VNPA on the issue of compensation. On the one hand, EV & VNPA would not support compensation on the basis that it legitimated a right to clear. On the other hand, the VFF argued that there should be compensation if landholders were required to retain native vegetation for biodiversity purposes. From participants' experiences of this tension, it appeared that neither these groups nor DSE were able to contain its destabilising effects on the policy process. These effects included: the impasse that developed in the reference group process; the shut down in relations between the two groups; the shifting of conflict into the political arena; the time lags between the launch of the NVMF and the release of the operational guidelines; and the way in which the policy was implemented in the absence of the operational guidelines.

Thus, the findings of the study underline the conclusion drawn in Chapter 2 that, even when there is broad support for a policy goals, such as protecting native vegetation or achieving Net Gain, differences in interpretation of such goals are likely to emerge as conflicts when it comes to refining and implementing policies. When such conflicts reflect incompatibilities among theoretical perspectives, such as those described in Chapter 2, there may be little, if any, scope to secure agreement on policy options. This was illustrated by the impasse that developed between the VFF and EV&VNPA on the issue of compensation. There may, however, be scope to identify policy options, in implementing and refining policies that are consistent with different theoretical perspectives. An example of such an option might be that of providing incentives for landholders to protect native vegetation.

From a management perspective this means that conflicts over policy goals and the means of achieving them will be endemic to the policy process and, because of the complex nature of the policy system, their effects will tend to be inherently idiosyncratic

and unpredictable. In other words, there will be limits to the extent to which it will be possible to plan or control for their occurrence in advance. This, in turn, suggests that there is likely to be a high degree of uncertainty associated with managing the tensions between and among the NVMF policy goals and those of the various stakeholders engaged in the policy process. These are the sort of conditions to which emergent strategy is well suited with its emphasis on adapting to uncertainty and taking account of the opportunities and constraints it presents.

Strategic Management

In Chapter 3 three of the major schools of thought on strategic management were reviewed, namely rational strategy, incremental strategy and emergent strategy. These schools provide fundamentally different perspectives on balancing the tensions between integration and adaptability in pursuit of policy goals. In rational strategy the emphasis is on integration and a high degree of stability, predictability and control is assumed. In incremental strategy the emphasis is on adaptability within bounds. Thus, in incremental strategy a relatively high degree of stability, predictability and control within bounds is assumed. In emergent strategy the emphasis is on adaptability without bounds and a relatively high degree of instability, unpredictability and uncontrollability are assumed.

The findings reported in Chapters 6 and 7 suggest that, in practice, the policy system under study was characterised by a dynamic tension between stability and instability, predictability and unpredictability, control and uncontrollability and therefore, between integration and adaptability. Furthermore, they suggested that these tensions differed for different parts of the system, for different behaviours and were subject to change over time. By classifying critical decision points as either stabilising or destabilising, the it was shown that there were some points in the system where it would be advantageous, in terms of policy outcomes, to engender instability in the system and therefore enhance

adaptability. Conversely there were other points in the system where it would be advantageous to engender stability and therefore enhance integration.

These findings demonstrate that the three schools of thought on strategy described above did not provide, in themselves, an adequate specification of the strategic problems that were faced by decision-makers in the vegetation policy system. The findings draw attention to the need for a higher order framework that recognises that both stabilising and destabilising forces are at work in the policy system and both need to be managed in order to achieve policy goals. In other words, they underline the need for a higher order framework that incorporates both adaptive and integrative management.

Complexity Theory

In this study Complexity Theory was used as a higher order framework for understanding the system of interacting problems that decision-makers face in their attempts to co-ordinate the activities of stakeholders engaged in the formulation and implementation of the NVMF in Victoria. Complexity theory provided a systematic framework for exploring how problems associated with integration and problems associated with adaptability might interact with each other, as well as with other sorts of problems in the policy system under study.

Key insights from Complexity Theory that guided the approach used in the study were the dynamic and composite nature of organisational behaviour and the distributed nature of knowledge and control. These insights underscored the importance of 1) eliciting multiple perspectives on the system from different levels within the system and 2) developing a detailed understanding of the complexities of the system before simplifying.

In the study causal maps were constructed to represent participants' understandings of the dynamics they perceived to be at play in the native vegetation policy system. Viewing these causal maps through the lens of Complexity Theory provided a basis for identifying

critical leverage points and constraints. Critical leverage points indicated points in the system where, depending on the decision or action taken, alternative chains of events could eventuate that could either promote or hamper the realisation of policy goals. Hence, these were potential points of bifurcation where management intervention could either promote the existing pattern of order or shift the policy system into a state of instability, at least until a new pattern of order is established.

Critical constraints were decision-making points that established pre-conditions, initial conditions or critical assumptions which, unless altered, or removed, would exclude the possibility of particular courses of action. Thus, critical constraints were points in the system where limits were set on the options open for consideration. In combination, critical constraints and leverage points drew attention to opportunities for promoting continuity or change in the behaviour of the system.

By tracking the interrelationships among the critical leverage points and constraints within and across causal maps, it was possible to identify dynamic patterns in the behaviour of the system such as: self-reinforcing feedback loops; particular circumstances under which self-organising processes could contribute to, or detract from the realisation of policy goals; and counter-intuitive dynamics such as the potential for management actions and policies aimed at enhancing co-ordination, predictability and control in the policy process to have destabilising effects in practice.

The findings of this study showed how the approach developed in the study could be used to build up a picture of management implications. This picture could then be used to identify practical opportunities for managing the system of problems that are detracting from, or contributing to, the capacity to realise policy goals.

Reviewing the findings of this study in light of Complexity Theory draws attention to the implication that, while approaches such as the one developed in the study might provide a richer understanding of the dynamics at play in a particular policy system; they do not render such systems controllable. The value of the study lies in the capacity it offers to

take advantage of opportunities that arise from such dynamics in the interests of realising policy goals. In taking advantage of such opportunities, the potential exists to realise better outcomes than would efforts based on management perspectives that assume the world is stable, predictable, and amenable to control.

Theoretical, Methodological and Practical Implications

In this study Complexity Theory was used as a basis for equating the strategic management of the NVMF policy process with navigating pathways through a complex system of interacting problems. Conceptualising strategic management in this way required consideration to be given to dynamic properties such as nonlinearity, feedback loops and emergent behaviour. This, in turn, required the drawing together of multiple stakeholder and theoretical perspectives on the system through iterative learning cycles.

The insights gained from applying this conceptualisation of strategic management to the NVMF policy process suggest that conceptualising strategic management in this way provided richer insights than would have been possible from conceptualising strategic management as a linear sequence of decision-making steps. Moreover, this conceptualisation of the system provided a cohesive and comprehensive map of the decision-making terrain that would not have been possible through adopting any of the individual theories on strategy or management alone.

Furthermore, the insights gained from applying this conceptualisation of strategic management to the NVMF policy process suggest that conceptualising strategic management in this way offers an opportunity to synthesise insights generated from other theoretical perspectives on the process such as integrated and adaptive management and rational, incremental and emergent strategy.

Methodologically the focus in the study was on understanding participants' perceptions of the dynamics at play in the policy system rather than as a vehicle to extend knowledge on complex systems or causal mapping per se. This is a common characteristic of studies that use Complexity Theory and causal mapping to gain in-depth understandings of a specific context. However, the findings of the study suggest that the interview protocol in conjunction with the causal map approach was a useful way of eliciting and representing participants' understandings of the dynamics and complexities of the policy system. The results of the participant verification procedure also suggest that the causal maps resonated with participants and triggered insights into their own understanding of the system.

Hence, the causal maps could prove valuable in: (1) displaying system complexity in a way that resonates with players in the system; (2) showing how participants perceive linkages, players and connections; and (3) providing a visible record of the participants' thoughts that can be built upon over time. However, one important caveat should be noted here: the causal maps cannot be elicited solely by self-reflection on the policy dynamics. The process employed in this thesis was facilitated reflection and this process was managed by someone with a dispassionate interest, but no inherent stakeholder involvement, in the problem.

This means that the methodology has an in-built requirement for external facilitation, in order to maximise the learning value and the validity of the exercise; a requirement that has obvious practical implications as well. Furthermore, as highlighted by Cooksey (2001), taking a Complexity Theory approach to unpacking policy problems will necessitate this external facilitator achieving a clear understanding of their own place and stance within the methodological system, so that these may be appropriately accounted for when interviews are conducted, maps are constructed, and interpretations and recommendations are made.

Practically, the approach developed in the study provided a way of identifying decision points in the policy system where management action could be taken to (1) remove or

vary critical constraints; (2) reinforce behaviours that enhance the adaptability of the system and therefore enhance the capacity of the system to incorporate or respond to different perspectives and (3) reinforce behaviours that enhance integration and stability in the system such as points in the system where it is desirable to build consensus and shared understandings.

Hence, the approach developed in the study could provide one way of bridging the gap between knowledge generated by various theories of strategy and management and the knowledge that participants have on the dynamics at play in a particular policy system. Having said this, it is important to keep in mind the role of the dispassionate and self-reflective facilitator in minimising bias and therefore ensuring, as far as possible, that a valid bridge has been constructed from the perspectives of the various stakeholders involved. This requirement will invariably add to the time needed to understand the dynamics of the system; a cost from a strict managerial point-of-view but an investment in learning for the future from the systems and complexity points-of-view.

This in turn, highlights a practical tension between the richness of the understanding possible through the methodological approach developed in the study and the investment of time and resources required to apply it. Therefore, while it might be valuable to apply the approach on occasion it is not an approach that could be applied routinely. With regard to more routine decision-making, the study offers decision-makers a way of thinking about the policy system rather than a method of eliciting information on the system. With regard to the latter, the potential exists for decision-makers to enrich their partial understandings of the system by drawing on a range of resources such as observation, their experiences of policy implementation, and feedback from others.

Limitations and Learning Experiences

The in-depth interpretive analysis reported in this thesis was based on interviews with ten participants. While the original intent was to report the analysis for the 59 participants interviewed, it became apparent during the analysis process that extracting the richness from individual interviews would require a retreat from this original intent. The understandings elicited for the study provide a partial lens on the system under study, even in terms of the participants interviewed. This study was intended to be illustrative, with a view to exploring the potential of the approach rather than to comprehensively inform practice.

In addition, the geographic coverage of the sample was only over two catchment management regions of a possible ten. This leaves open the possibility that very different perspectives on the system may have been elicited for other regions.

This study represents a perspective on the system at a particular point in time, although the participant verification processes employed in the study allowed for some insights across time to be achieved. If follow-up interviews were conducted at different points in time, again, different perspectives may have been elicited.

A limitation of the data collecting and analytical approaches that it became apparent after the interviews was that the causal maps constructed for participants whose interviews were recorded as written notes were less detailed than those constructed for participants whose interviews were recorded on tape. This was partly due to the researcher's note-taking skills, partly due to the evolving nature of the analytical framework and partly due to the fact that the tape-recordings afforded the possibility to repeatedly revisit the interview and pick up details that may have been previously missed. This issue was of greater concern to me than differences in interpretation that might have emerged as a result of differences in the degree to which people constructed their own physical representations, as generally the tape-recordings provided a more in-depth picture of issues discussed by participants than did the physical representations. This conclusion was supported by the findings of the participant verification procedure.

Potential for Future Research

The responses of participants to the causal maps suggest that these maps could potentially be valuable learning tools for participants to build upon. They could also provide a basis for people undertaking different roles in the policy system to understand each others' perspective and for developing shared visions in the interests of team building and promoting co-ordinated action towards common goals (Senge 1990).

As this was an exploratory study its coverage of roles in the policy system was somewhat limited. At the same time, the richness of the insights gained from the ten in-depth interviews that were reported suggests that the approach developed in the thesis could be a valuable one for informing management strategy in practice. For example, points in the system were identified where self-organising processes were likely to be contributing or detracting from to desirable policy outcomes. Also points in the system were identified where it appeared that constraints aimed at stabilising system behaviour may have been hampering scope for desirable self-organisation and adaptability in the system.

In addition, evidence was found of two self-reinforcing feedback loops in the system. One of these related to the selection of the case study region for the pilot native vegetation strategy. The other related to the role of State and Federal government monitoring and reporting requirements. While there was insufficient information in the findings to identify the implications of these systemic patterns in behaviour for the pursuit of policy goals, this would be a valuable area for future research.

Another potential direction for future research would be to examine the usefulness of the complexity/mapping approach taken in this thesis as a prospective planning process. The research reported here was retrospective in focusing on unpacking the dynamics of a natural resource management policy process that was already well underway. What remains to be seen is whether or not such an approach could facilitate the forward

planning for a new policy process by focusing deliberate attention on trying to anticipate where critical constraints might exert their impact and where critical leverage points might emerge.

This would extend the strategic planning approaches advocated by Eden and others into the realm of natural resource policy planning and management (e.g. Eden & Ackermann 1992, 2004). Implicit in such an approach would be the feeding forward of learning from previous policy processes that had been analysed and understood in a manner similar to what has been achieved in this thesis. However, this should not be seen as an approach that would render the policy process completely predictable nor would all possible contingencies be identified. Rather, there may be value in getting the various players who are anticipated to be involved in the policy problem to think about perceived assumptions, potentials, hindrances and possible dynamics before commencing the process of addressing that problem. In short, this could constitute a nonlinear planning approach that explicitly invokes a double-loop learning process. This would add considerably to the lead time needed to get a policy formulation and implementation process underway, but with the potential benefit of reducing the probability that the process will come completely or partially 'off-the-rails' downstream as the dynamics unfold. It remains to be shown that such a process would be feasible, viable and effective.

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Appendix 1: Participant Information Sheet

Stakeholder values, institutional change and formulating vegetation management policies

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These interviews are part of a PhD study aimed at mapping the complexity and dynamics of the native vegetation policy process. The study is based on the idea that the policy process is a complex and dynamic system where knowledge about how the system works is distributed throughout the system. This distributed knowledge emerges from the ability of the various elements in the system (such as individual people or groups of people) to learn about the system, make decisions and interact with other elements in the system. These ideas highlight the critical role of people and social interaction in the policy process and suggest that any understanding of how the system works should be grounded in the knowledge of the people involved.

To this end, in the interviews you will be asked to think about one or more issues that you have recently been involved with. A semi-structured interview technique will then be used to encourage you to reflect upon the nature of a particular issue and to map out the key factors that needed to be considered at the time. Interview materials such as felt tipped pens and post it notes will be available for you to use. The interview generally takes about an hour and will be recorded on tape with your permission.

Please be assured that your participation in the study is entirely voluntary and any information you provide will be confidential and anonymous. When the results of the study are reported individuals will not be identified in any way. You are under no

obligation to complete the interview and you can end the interview at any time. Also, you are not obliged to answer any questions that you do not wish to answer.

Any data collected will be kept confidential and anonymous. Data will be coded for analysis and audio tapes and other hard copy material will be stored in a locked filing cabinet at Jean Sandall's home. The UNE Code of Conduct for Research requires that research data records be preserved for at least 5 years, after which time all data records will be destroyed.

If you have any questions about the research please feel free to contact either Jean Sandall or Professor Ray Cooksey, whose contact details are given above. The research will be completed by May 2005 and we would be happy to let you know when the study is complete and the findings are available. Thank you for your interest in the study and please feel free to get in touch with us should you have any questions.

This study has been approved by the Human Research Ethics Committee of the University of New England (Approval No04/111 Valid to 30/06/2005). Should you have any complaints concerning the manner in which this research is conducted, please contact the Research Ethics Officer at the following address: Research Services, University of New England, Armidale, NSW 2351.Telephone: (02) 6773 3449 Facsimile (02) 6773 3543 Email: Ethics@metz.une.edu.au

Appendix 2: Interview Guide

- Thanks for agreeing to take part in the study

- What the interview will involve – I'm going to ask you a bit about your role and to think about some issues that you have been involved with recently in your work.

- With the help of these bits and pieces I'm then going to ask you to reflect upon the nature of the issue and the key factors that needed to be considered at the time.

- Seek informed consent to participate and record [remember to turn on recorder]

- Before we start I'd like to assure you that your participation in the study is entirely voluntary and confidential. Also I don't want you to feel that you have to answer any questions if you don't want to.

Prompts

- Can you tell me a bit about your role?

- Is there an issue or project that you would like to talk about?

[hand participant Post-It notes and ask them to record the factors that they felt were important to consider at the time- as people identify aspects ask them if there is some way that they can represent these on Post-It notes and the emerging map-provide people with felt connectors as appropriate]

[Some people like to start by talking about their role and illustrate this with examples, while other people like to start by talking about a project or issue that illustrates their role.]

- Can you tell me something about the people involved and their roles?

- How did the people involved influence the decision-making process?
- How did the different people involved feel about the issue? How did the different people in the group perceive their roles/ goals?
- What sorts of resources were available for addressing the issue?
- Are there any procedures (formal/informal) that you are expected to follow in these sorts of issues?
- What sorts of constraints did you have to work within?
- How do the people involved usually go about things?

Explore connections

Reflection

- How typical is this issue of the sorts of issues that you generally deal with in your work?
- What came out of the process – tangible/intangible, short term/ long term?
- Did you get anything out of the process?
- Have you received any feedback on how things went?
- In thinking about the range of issues you have described is there anything that strikes you as being particularly important?

Wrapping up

- Thank the participant for their contribution.
- Are there any things that we haven't covered so far that you'd like to talk about?
- Would you like to ask any questions?
- The participant will also be assured that should they wish to withdraw their consent at any time after the interview, any recorded material will be returned to them or destroyed and will not be used in the study.

- How info will be kept anonymous and confidential, names not recorded on interview material, names not reported in thesis.
- Welcome to get in touch if you want to add anything later of think of any questions at a later time
- If the participant has used the Post-It notes ask if it is ok to take a photo of them so that you can have a record of how they are arranged
- Availability of study findings