

Codes of forest practice as regulatory tools for sustainable forest management

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Abstract

A 'forest practices system' is the broader regulatory framework for the delivery of a code of forest practices. Various approaches are taken by different States within Australia, reflecting differences in factors such as the proportion of operations within the public and private sectors, the type of forest operations, institutional arrangements within government, social attitudes and the availability of skills and resources in both the government and private sectors. The key components of a forest practices system are discussed, with particular reference to codes that regulate operations within native forests. The regulatory approach adopted under a forest practices system should aim to foster co-operation among stakeholders, optimise the use of available skills and resources and minimise bureaucracy. The effectiveness and credibility of any system will ultimately depend upon its having clear objectives and standards, provision for continuing improvement, and transparent processes for monitoring and reporting outcomes.

Introduction

Australia's National Forest Policy Statement provides that the sustainable management of forests will be given effect through a number of tools, including integrated planning processes, management plans and codes of practice (Commonwealth of Australia 1992).

Codes of forest practice are sets of regulations or guidelines that are developed to help forest managers achieve desired outcomes (Dykstra and Heinrich 1996). The fundamental purpose of most codes is to regulate forest use in a manner that protects the natural and cultural values of the forest.

Codes of forest practice are more than mere 'rule books'. In the broader

sense, the code is one component of a 'forest practices system' that must provide a regulatory framework for delivering the desired outcomes. In the absence of an appropriate regulatory framework, codes of forest practice have been cynically criticised as "a legitimising tool for unaccountable forest management" (Forsyth 1998).

This paper reviews the components that comprise a forest practices system, with particular emphasis on wood production in native forests. The discussion is based primarily on experience within Tasmania, with reference to overseas trends and some approaches used in Victoria, Queensland, New South Wales and Western Australia.

Components of a forest practices system

The Resource Assessment Commission identified six criteria for a code of forest practice: aim or purpose of the code; regulatory approach; comprehensiveness of standards; enforcement; penalty for breaches; and the relationship to other levels of planning and management (RAC 1991). The National Forest Policy Statement (Commonwealth of Australia 1992) recognises five principles to be applied to forest practices related to wood production in native forests. These principles deal with: the legislative framework for a 'forest practices system' (including a code of forest practice); safety; principles of environmental care; implementation of provisions with respect to planning, road access, harvesting and forest establishment; and monitoring and review.

A forest practices system can be regarded as part of a broader environmental management system, and its components may be scrutinised from the perspective of a framework such as that provided by ISO 14001 (Standards Australia/Standards New Zealand 1996). Attachment 1 presents the key components of a forest practices system and the approaches taken by the five States within Australia that conduct large scale harvesting operations within multiple-use native forests.

1. Legal and policy framework

Regulatory approach

The objectives and key components of a forest practices system should be clearly enshrined in legislation. This is particularly important if the forest practices system is to apply the principles of sustainable forest

management to all tenures. The choice of regulatory approach is a socio-economic decision. All regulatory systems involve some combination of self-management and governmental control, and some combination of the "carrot and stick". The mix depends upon whether the aim is to prevent environmental harm by fostering good practices through training, education and cooperation, or by imposing penalties for non-compliance. The former approach requires the support of all stakeholders and depends upon an adequately resourced, well-trained and motivated workforce. In contrast a focus on legal enforcement is an increasing trend as society seeks greater accountability from forest managers (Eddins and Flick 1997).

Ideally, the legislative framework should provide for an integrated and streamlined approach and address whether the system will be primarily delivered by a single agency operating on a state-wide basis or by different units of local government and/or state agencies. A single agency approach ensures that uniform standards are applied in a consistent and integrated manner. In contrast, a multi-agency approach can lead to splintering of the forest ecosystem into elements administered by local government and/or agencies responsible for single use (such as wildlife, water, and recreation). This outcome often involves political power plays between competing governmental agencies (Gasser 1996, Ellefson *et al.* 1997), and can lead to increased bureaucracy and increasing reliance upon legal enforcement under different laws (Eddins and Flick 1997). A focus on regulation through a number of single-use agencies can ultimately diminish the ability of government to manage and monitor the full range of forest uses and values in an integrated way (Ellefson *et al.* 1997).

An emphasis on governmental regulation often leads to an increasing spiral of tightening regulations (Garland 1996), which progressively jeopardise the viability of forest management systems through excessive bureaucratic processes. Such processes impose considerable costs on both industry and government, and often result in systems that achieve only the minimum standards necessary to avoid penalties, rather than the pursuit of excellence. In contrast, a self-regulatory approach can avoid unnecessary bureaucratic costs and provide greater flexibility and autonomy for industry, in return for improved environmental performance (Gunningham and Sinclair 1999). The advantage of self-regulation to government is that it can more efficiently and effectively focus its limited resources towards areas where the greatest improvements can be made. This should mean a greater commitment to activities such as training, education, research and monitoring, rather than to 'policing' and legal enforcement through punitive measures.

The often-quoted criticism of self-regulation is that it is akin to having the fox in charge of the chicken house (Gasser 1996). This is unfair if one assumes that a modern enlightened fox would rather sustainably manage the chickens than eat himself out of house and home. Furthermore, most systems of self-regulation should have some level of government oversight through independent monitoring of compliance and the imposition of penalties where self-regulation has not delivered acceptable outcomes.

The difference between self-regulation and 'independent' regulation is one of degree. All regulatory systems involve some degree of self-regulation. At one extreme, purely voluntary codes of

practices may rely almost totally upon self-regulation. At the other extreme, even systems that depend upon management and regulation by government will generally involve some degree of self-regulation at the individual forest operator level. The management of public forests by governmental businesses or agencies with a strong commercial focus is also increasingly perceived as a form of self-regulation, with many of these organisations being subject to regulation by other 'independent' arms of government.

In all systems that involve legal enforcement, there is the risk of 'regulatory capture' (Briody and Prenzler 1998) where the regulator becomes reluctant to prosecute offenders because of close working relationships or political pressure. Ultimately, the most important element for the credibility of any system is to have systematic and transparent reporting of results with respect to monitoring and compliance.

In Australia, there are major differences in the legislative and institutional arrangements for the regulation of forest practices across public and private land.

The objectives and key components of the Tasmanian system are detailed in the *Forest Practices Act 1985*.

Tasmania's system is best described as self-regulation with independent monitoring by the Forest Practices Board. The system applies equally to private and public land. The statutory objective of the Forest Practices Board is to foster a cooperative approach towards policy development and management in forest practices matters. The Board is also required to monitor and report on standards, and to enforce the *Forest Practices Act* where necessary. Since its inception, Tasmania's system has maintained a

commitment to a practical and streamlined approach, and an emphasis on education and training, with penalties as a last resort (Rolley 1994).

The objectives of the Victorian system are contained within the code, which is ratified by both houses of Parliament. In Victoria, the code applies to both public and private land, but the regulatory approaches differ. The State agency, Natural Resources and Environment, manages and regulates the operations on public land. A self-regulatory approach is used on private land, with local government being responsible for monitoring compliance.

In Western Australia, the objectives and most of the components of the forest practices system are contained in the *Conservation and Land Management Act 1985* (although the Act does not make reference to a code). The Department of Conservation and Land Management (CALM) provides an integrated agency approach for the regulation of forest practices in the public forests of Western Australia. Operations in native forests on private land are relatively minor and the code does not apply unless the operations are supervised by CALM.

Objectives and components of a forest practices system are partially provided under various legislative and institutional processes in NSW and Queensland. In Queensland, the code only applies to specified public land, with the Department of Primary Industries (Forestry) responsible for commercial operations under the broader regulatory control of the Department of Natural Resources. The lack of a State-wide approach to the regulation of forestry activities on freehold land has been recognised as a major deficiency (McDonald *et al.* 1999).

A chronic case of regulatory spiral in NSW has resulted in a complex, multi-agency system for public forests and some controls for private plantations but less control over private native forests.

Regulation of the private land sector

In Tasmania, about one half of the total operations occur on private land. Privately owned native forests are of less importance for wood production in other States, but the contribution of these forests to the overall objectives of sustainable forest management is being recognised increasingly through processes such as Regional Forest Agreements (see for example McDonald *et al.* 1999). Currently, only Tasmania and Victoria apply codes to native forests on private land.

Infrastructure and resources that are generally available to service the public sector and operations on private land by large companies are not readily available to service the smaller independent operations on private land. As a result, the standard of forest practices is generally lower (Forest Practices Board 1998) and there are a disproportionate number of environmental breaches.

The success of regulatory processes in the private sector in Tasmania is linked to four key factors-

1. *Participation* - The support of the private sector was fundamental in setting up the original legislation and code, and the sector has been closely involved in the subsequent evolutionary changes to the system. The sector accepts the forest practices system as a package, in which constraints on management are traded off against the benefits that flow from a credible, self-regulatory regime.

2. *Harvest rights* - The private sector must be given a guarantee of harvest rights in return for agreeing to operate within the constraints of a regulatory system.
3. *Cost effective regulatory approach* - Appropriate mechanisms are necessary to provide for adequate planning and supervision of operations, without undue bureaucracy and cost.
4. *Recognition of rights forgone* - There needs to be an agreed framework for dealing with the consequences of applying restrictions and reserving land from forestry activity. The latter framework will inevitably include some combination of voluntary and imposed measures, which may or may not involve compensation (Hanna 1997). The private sector in Tasmania has agreed to a definition of 'duty of care' by which landowners will reserve land from logging, up to agreed thresholds, in order to protect natural and cultural values. The reservation of land beyond the thresholds is deemed to be for the community benefit and on this basis is subject to voluntary arrangements or the payment of compensation.

Involvement of other stakeholders

The involvement of other key stakeholders is a fundamental consideration in the choice of regulatory approach and is a key to achieving and maintaining broad political support. Consultative bodies exist in varying forms in throughout Australia, with formal involvement in the oversight of the forest practices system being best developed in Tasmania and Victoria.

2. Planning

Codes

Codes generally comprise a document or set of documents for providing guidelines and standards for the planning and conduct of forest operations. Most codes in Australia contain provisions in relation to the planning of forests, building access, harvesting, conservation of other values, forest establishment and forest maintenance (National Forest Inventory 1998). Increasingly, there is a trend for separate 'thematic' codes to deal with different activities such as timber harvesting, fire management, recreation and grazing. Most codes are also complemented by other manuals and specifications. It is important to ensure that the overall package provides a clear and comprehensive set of guidelines, without the risk of unnecessary confusion arising from conflicts or gaps within the hierarchy of documents.

The manner in which a code is written and structured needs to be considered on the basis of two inter-related factors.

1. *The regulatory approach* that is adopted under the forest practices system. A regulatory system that has an emphasis on monitoring and penalties for non-compliance will generally be associated with a highly prescriptive code. A code that primarily provides principles and guidelines will need to be backed up by expert judgement to ensure that satisfactory results are achieved.
2. *The audience* for the code. Most codes will have a range of audiences, depending upon the regulatory approach and the manner in which forestry operations are planned and supervised. Is the primary audience forest operators, forest

supervisors, forest planners, forest regulators or legal counsel? This question needs to be answered before the code is written.

Most codes comprise a combination of prescriptions, which are mandatory, and guidelines, which deal with situations where a more flexible approach is needed to achieve outcomes. Mandatory prescriptions are often applied where they can be accurately measured and applied in the field and there is no justification or basis for discretion to be exercised. For example, standard reserve widths are often prescribed to protect various classes of stream. Guidelines are often more appropriate where the variability of the site and/or management activity requires expert judgement to be exercised on a case by case basis. Opposition to harvesting and/or a mistrust of forest managers often results in a move towards more prescriptive rules. Codes that become overly prescriptive fail to provide the flexibility that is necessary to deal with the variability of the forest and the differences in management objectives. Furthermore, a prescriptive approach may hinder continuous improvement, by discouraging initiative, and making it more difficult for new science and technologies to be introduced (Dykstra and Heinrich 1996).

Strategic Plans

Whilst codes provide the principles and guidelines for achieving agreed standards, it is the forest planning documents that define the objectives of management and prescribe the appropriate practices for each site. It is important that the forest practices system includes or is linked to formal processes that provide for the strategic planning of forest use and values across all tenures. Generally these processes are well established for

public forests, through mechanisms such as forest management plans.

On private land, there is often a paucity of information and a lack of formal planning at the strategic level. In recent years the strategic overview for many forest values has been improved through processes such as the Comprehensive Regional Assessments of the Regional Forest Agreements. The strategic overview provides the context within which decisions must be made in relation to the management of special values through reservation or through management by prescription at the operational level under a forest practices system. Strategic planning is also important for the regulation of operational matters such as wood flows and the related effects on the location and concentration of harvesting on water catchments and rural roads. A formal process for the strategic planning of operational matters across all tenures occurs in Tasmania, with processors that harvest more than 100,000 tonne p.a. being required to submit Three Year Plans.

Operational Plans

Most forest practices systems strongly recognise the need for operational plans to be prepared. It is axiomatic that most operational problems are a consequence of inadequate planning. The challenge for operational plans is to provide unambiguous instructions on how the forest operations are to be conducted. Vague or generalised statements are open to unintended or deliberate misinterpretation and are often a reflection of inadequate planning. In contrast, highly prescriptive plans are exposed to the same problems as overly prescriptive codes. That is, they will constrain the flexibility and professional judgement that is often required in a variable environment to achieve good

outcomes, and they will contribute to the syndrome of regulatory spiral and increase litigation. As with codes, plans need to contain a mix of appropriate prescriptions and guidelines that is unambiguous, can be readily assessed and enforced with respect to compliance, but does not overly constrain operational flexibility or create opportunities for vexatious litigation. Getting this right is of particular importance because operational plans and/or associated licences are generally the means by which the provisions of codes are given legal effect.

Public involvement

It is widely recognised that there need to be appropriate mechanisms for public consultation, release of information and transparent reporting on standards achieved. It is beyond the scope of this paper to review how this can be done. Most States generally provide opportunities for public access to information with respect to planning and monitoring in public forests. Formal mechanisms for providing information with respect to private forests are available in Tasmania and Victoria. Processes for the public review of codes are provided in Victoria, NSW and Tasmania.

3. Implementation and enforcement

Resources

A well-trained and motivated workforce is an essential ingredient of any forest practices system. Self-regulatory systems, in particular, require that responsibilities be clearly recognised and appropriate expertise and skills be available to deliver acceptable standards. In Tasmania, there are 173 officers employed within the public and private forestry sectors who are appointed as Forest Practices

Officers under the *Forest Practices Act* 1985 (Forest Practices Board 1998). Formal appointment of these officers under a statutory framework provides them with recognition and status. As such, it provides incentives for personal motivation, professional pride and career development. The advantage to government is that it gains, at virtually no cost to government, a network of skilled and experienced officers who have responsibility for implementation of the forest practices system across all tenures. The advantage to industry is that it gets delegated powers to plan, implement and monitor its operations with minimal bureaucracy. The 'regulatory' value of these officers, who are supported by other research and technical staff, is estimated at \$7 million p.a., compared with a total cost of \$356,000 p.a. for the regulatory functions of government.

In other States, the cost of regulation is essentially borne by government and, whilst adequate resources are generally available for regulation in the public sector, the skills and expertise available for regulation in the private land sector are presently considered to be inadequate.

Enforcement

Enforcement of a forest practices system is determined by the regulatory approach. It is important to distinguish between 'corrective action' and 'penalties for breaches'. The former involves a mechanism to 'make good' any problems and prevent environmental harm. Such action can be followed up with formal training and education to ensure that future problems are avoided, or by penalties, where appropriate. As in any regulatory system, penalties will provide a strong deterrent to non-compliance only if either the risk of being apprehended and convicted is

high, or the penalty for non-compliance is very high. Prosecutions can provide a strong deterrent, but legal action is generally expensive for regulators to pursue, proceedings are often drawn out well beyond the date of the offence, and cases are often won or lost on legal technicalities that have little to do with the substantive issue of non-compliance. In contrast, alternatives to prosecution are often the most effective tools for enforcement of a forest practices system. In Tasmania, reductions in work quotas or cancellation of contracts have been used effectively by industry to regulate the performance of contractors. Formal notices to “make good” can also be issued and fines can be imposed by the Forest Practices Board as an alternative to prosecution. Prosecutions are used for serious breaches or for situations where self-regulatory processes have not adequately provided corrective action. On public lands, most other States have provisions for corrective action and the imposition of penalties through the suspension of contacts or operator licences. In NSW, the multi-agency approach has resulted in enforcement by four government agencies under at least six Acts.

Resolution of conflicts

As with issues of non-compliance, a forest practices system needs to provide an appropriate mechanism for the resolution of conflicts. In some sectors there is support for the rights of citizen groups to object or take action against forestry activities (Briody and Prenzler 1998). However, there is also a strong view by many that such rights lead to an unacceptable proportion of disruptive, vexatious and unreasonable actions (Garland 1996). In Tasmania, a Forest Practices Tribunal established under the *Forest Practices Act* has successfully provided a non-legalistic

forum for the resolution of disputes, although the statutory exclusion of legal representatives from its proceedings has recently been challenged. Victoria has an in-house review process, which has the support of stakeholders. The other States do not have special mechanisms for dealing with internal forest practices issues, although actions may be pursued through other tribunal or court processes. In no State does the forest practices system provide directly for third party actions. However, this has not precluded actions being initiated through the provisions of the broader legislative framework.

4. Monitoring

Monitoring of forest practices must be considered at two levels:

1. Monitoring of compliance with prescribed practices; and
2. Monitoring the efficacy of prescribed practices.

Monitoring of compliance

Monitoring or auditing of compliance with prescribed practices is normally an activity undertaken by the party responsible for the supervision of operations or by an independent body. In-house monitoring is a tool to support management and allow improvements to be made to environmental performance (Warkotsch *et al.* 1996). To be credible, in-house monitoring needs to be backed up by independent verification and public reporting of results.

All States have in-house monitoring for operations on public land and the results are publicly reported in all States except Western Australia. Queensland, Tasmania and Western Australia also conduct audits of compliance by bodies that are, to

varying degrees, independent of the public forest manager. Only Tasmania has formal provision for monitoring and independent audit of compliance on private land.

The monitoring of compliance is a requirement of formal environmental management systems (EMS) such as ISO14001, which are introduced often as a response to arrest the regulatory spiral and allow a move towards recognition and certification of self-regulatory processes (Gunningham and Sinclair 1999). A trend toward EMS is not restricted to the private sector. Governmental agencies such as Queensland Department of Primary Industry (Forestry) and GBEs such as Forestry Tasmania have pursued processes for the recognition of their management systems for similar reasons.

Monitoring the efficacy of prescribed practices

Monitoring the efficacy of prescribed practices means evaluating how well these practices have achieved the desired outcome, such as protection of the habitat of threatened species or of the quality of water. Whilst monitoring of compliance should be carried out routinely across all operations, monitoring of efficacy is generally done through strategic research or long term monitoring projects. The results of these studies are then used to refine the practices prescribed within codes. The scientific credibility of a code will be seriously undermined in the absence of a continuing program to carry out research and monitoring, and to have mechanisms for the translation of the results into improved practices. All States have programs to evaluate the efficacy of prescribed practices, and all recognise the need for continuing work in this area.

In both systems of monitoring, the methodology should report on the statistical reliability of results, including the chance of failing to detect an important impact (M. Burgman *pers. comm.*, McDonald *et al.* 1999).

5. Review and Improvement

The provisions of most codes are drawn from a combination of research findings, operational experience and expert judgement. Continuing review and improvement is necessary to maintain the scientific credibility and practicality of a code of practice. Often, there is a fear by the forest industry that further research will result in greater restrictions being placed upon forest management. This fear is often misplaced. Adams (1996) describes how a policy to remove woody debris from streams in the USA was completely reversed when research demonstrated that the retention of woody debris was often beneficial for habitat and reducing channel erosion. Comprehensive studies into the habitat and management requirements of specific threatened species in Tasmania have generally provided a sound justification for current practices, and in many cases have resulted in less restrictive management practices than those imposed on the basis of limited knowledge.

In recent times, the precautionary principle has been misquoted to coerce forest managers into conducting specific research. For example, the report into the recent review of the Tasmanian Forest Practices Code concluded that there was inadequate information upon which to evaluate the efficacy of provisions in relation to small, intermittent (Class 4) streams (Davies *et al.* 1999). On this basis,

several submissions argued for a precautionary approach to be taken, with buffers increased from 10 metre machinery-exclusion zones to those considered appropriate for major permanent streams (30 metre reserves). Such an approach would have an overwhelming effect on the viability of forestry operations over much of the State.

Research in most States is carried out through public funding. In Tasmania, the scientists that directly support the forest practices system are fully funded by the users of the forest practices system.

Discussion and Conclusions

It is the regulatory approach adopted under a forest practices system that governs, to a large extent, how the objectives and provisions of a code of forest practice will be delivered on the ground. The choice of regulatory regime is a function of fundamental philosophy and the availability of skills and resources. From a philosophical perspective, the regime will reflect how far society trusts people to self-manage, and at what point society wishes to impose intervention by government. To some extent, the threshold of intervention is a function of the perceived risk, with society expecting more accountable forms of regulation over activities such as the clearfelling of oldgrowth forests than might be expected for the logging of plantations. The choice of a regulatory regime will also depend upon the availability and distribution of resources and skills in both the public and private sectors.

Many parts of Australia, in common with many States of America, have experienced the syndrome of an increasingly regulated and litigious forestry environment. Most forest

managers despair that this trend diverts scarce resources towards a focus on bureaucratic process, rather than on outcomes. The end result is a regulatory system that is adversarial in nature (Ellefson *et al.* 1997) and which benefits the legal profession, not the forests (Gasser 1996).

The alternative lies in systems that are largely self-managing and self-correcting. To be effective and credible, such systems must deliver efficient processes and outcomes through -

- a regulatory approach that minimises bureaucracy, fosters co-operation between stakeholders and optimises the use of available skills and resources
- high quality planning, including opportunities for public involvement
- an emphasis on incentives to encourage high standards, with penalties as a last resort
- clear objectives and standards
- monitoring and public reporting of results (including independent audit)
- a commitment to continuous improvement through training, education and research.

Ultimately, the worth of a forest practices system will be measured in terms of society's acceptance of the outcomes in the forest.

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Attachment 1. Key components of a forest practices system and the approaches taken by five States within Australia

Tasmania		
(compiled by Graham Wilkinson)		
Legislative framework		
<ul style="list-style-type: none"> Clearly defined objectives 	Yes	<i>Forest Practices Act</i> contains a schedule of objectives, including reference to the sustainable management of public and private forests
<ul style="list-style-type: none"> Provision for the key components of a forest practices system 	Yes	Contained within the <i>Forest Practices Act</i> . Covers the Forest Practices Board, Forest Practices Advisory Council, appointment of Forest Practices Officers, Private Timber Reserves, forest practices plans, three year plans, appeal provisions, legal enforcement, audits, and reporting of results to Parliament.
<i>Regulatory approach</i>		
<ul style="list-style-type: none"> Application to all tenures 	Yes	The forest practices system applies equally to private and public tenures

<ul style="list-style-type: none"> • Appropriate blend of regulatory strategies 	Yes	Self-regulation with independent monitoring and enforcement by the Forest Practices Board
<ul style="list-style-type: none"> • Involvement of key stakeholders 	Yes	Key stakeholders are represented on a statutory Forest Practices Advisory Council
<i>Planning</i>		
<ul style="list-style-type: none"> • Comprehensive standards and guidelines within a Code of Practice 	Yes	A single Code covers both native forests and plantations. The Code is backed up by specialist manuals and planning instructions.
<ul style="list-style-type: none"> • Preparation of strategic and operational plans 	Yes	Three Year Plans are required for major processors. The <i>Forestry Act</i> provides for Forest Management Plans for public forests. Operational ‘forest practices plans’ are required for all operations that involve forest roading (including quarries), harvesting or reforestation.
<ul style="list-style-type: none"> • Streamlined approach with respect to other Acts and planning systems 	Yes	Objective is for the forest practices system to be a “one stop shop” wherever possible. Forestry activities upon private land are exempt from the provisions of local planning schemes if the land is declared as a Private Timber Reserve under the <i>Forest Practices Act</i> .
<ul style="list-style-type: none"> • Public access to information 	Yes	Neighbours and local councils are formally notified of intended operations. Policy of the Forest Practices Board is to make information available.
<i>Implementation and enforcement</i>		
<ul style="list-style-type: none"> • Training and education 	Yes	Formal training in forest practices is carried out for Forest Practices Officers (FPOs) and other forest workers. FPOs must complete regular training courses to maintain their accreditation.
<ul style="list-style-type: none"> • Clearly defined roles and responsibilities 	Yes	Institutional and contractual roles and responsibilities are relatively clear, despite periodic changes in relationships.
<ul style="list-style-type: none"> • Adequate resources 	Yes	Most sectors have access to appropriate skills and resources, primarily through self-funded FPOs and specialist back-up.
<ul style="list-style-type: none"> • Provision for corrective action 	Yes	The <i>Forest Practices Act</i> provides for FPOs to issue notices to stop work and/or correct problems.
<ul style="list-style-type: none"> • Penalties for breaches 	Yes	Penalties are imposed by forest managers under self-regulation and as fines by the Forest Practices Board or through prosecution under the <i>Forest Practices Act</i> .
<ul style="list-style-type: none"> • Independent dispute resolution 	Yes	The Forest Practices Tribunal is an independent body that hears disputes in a non-legalistic manner.
<i>Monitoring</i>		
<ul style="list-style-type: none"> • Monitoring compliance with standards 	Yes	Major forest managers have internal monitoring systems (such as ISO14001) in place. The <i>Forest Practices Act</i> requires that a certificate of compliance must be lodged at the completion of all Forest Practices Plans (this provision introduced from 1/7/99).
<ul style="list-style-type: none"> • Monitoring the efficacy of standards 	Some	There has been a strong research effort to monitor the effects of forestry operations on specific values. Continuing research is required.
<ul style="list-style-type: none"> • Independent audit of compliance 	Yes	The Forest Practices Board audits a 15% sample of operations each year.
<ul style="list-style-type: none"> • Public reporting of results 	Yes	Results of the independent audit are reported in the Annual Report of the Forest Practices Board.
Review and improvement		
<ul style="list-style-type: none"> • Commitment to continuing research 	Yes	The research and advisory program of the Forest Practices Board is funded by the public and private forest management

and development		sectors.
<ul style="list-style-type: none"> Formal process for independent review and revision of the Code, including public input 	Yes	The <i>Forest Practices Act</i> provides for public input into the review of the Code. The policy of the Forest Practices Board, endorsed by the RFA, provides for regular, independent review.
<p>Western Australia (Compiled by Ray Fremlin and John Clarke)</p>		
Legislative framework		
<ul style="list-style-type: none"> Clearly defined objectives 	Yes	The term “Code of Practice” is not mentioned in the Conservation and Land Management Act 1984. The “Codes of Practice for Timber Plantations in WA and for Timber Harvesting in Western Australia” and its accompanying “Field Manuals for plantation management and the Manual of Management Guidelines for Timber Harvesting in Western Australia” are simply a part of a hierarchy of “rules” which govern and control plantation and native forest management activities. The hierarchy is: CALM Act, Forest Management Regulations under the CALM Act, other relevant Acts, Forest Management Plan, Harvesting Contracts, the Codes and Manuals, and finally the numerous detailed specifications, guidelines, etc which are referred to in the Manuals. Clearly defined objectives for forest practices/management are set out in the Forest Management Plan 1994-2003, as required under the CALM Act.
<ul style="list-style-type: none"> Provision for the key components of a forest practices system 	Yes	Contained in the CALM Act 1984 and Management Plans
<i>Regulatory approach</i>		
<ul style="list-style-type: none"> Application to all tenures 	No	The Code of Practice for Timber Plantations applies to private and public plantations. The Field Manuals and the Manual for timber harvesting only apply to State forests and State-managed plantations, although the latter applies to private forests if CALM carries out harvesting on behalf of the landowner.
<ul style="list-style-type: none"> <i>Appropriate blend of regulatory strategies</i> 	Yes	Self-regulation is a key aspect. Codes are not enshrined in legislation. Contractors working for CALM are required to manage their activities in accordance with the Codes and Manuals. Ultimate responsibility for harvesting and regeneration activity on State forest and CALM-managed plantations however, rests with CALM.
<ul style="list-style-type: none"> <i>Involvement of key stakeholders</i> 	Yes	The Harvesting Code and Manual are produced entirely by CALM. Input is invited from harvesting contractors. Such input is generally limited. Public input occurs at a higher level through the Forest Management Plan. The Plantation Code is a joint production between CALM and AFG.
<i>Planning</i>		
<ul style="list-style-type: none"> Comprehensive standards and guidelines within a Code of Practice 	Yes	The Codes and Manuals cover both native forests and plantations.
<ul style="list-style-type: none"> Preparation of strategic and operational plans 	Yes	Section 1 of the Harvesting Manual covers planning for harvesting and regeneration, including the requirement for long, medium and short term plans. The plantation Code requires all

		growers to prepare Plantation Management Plans which incorporate Establishment plans, Tending Plans and Fire management Plans. State forest is managed according to 5 year plans.
<ul style="list-style-type: none"> Streamlined approach with respect to other Acts and planning systems 	Yes	The Codes and Manuals refer to other relevant Acts.
<ul style="list-style-type: none"> Public access to information 	Yes	The Codes and harvesting Manual are saleable documents. CALM also tries to inform the general public of impending harvesting operations via advertisements in local papers and by on the ground contact with neighbours and local authorities. The Field Manuals for plantation management are not for public release. Plantation Management Plans are provided to Local Government Authorities as a requisite to planning approval.
<i>Implementation and enforcement</i>		
<ul style="list-style-type: none"> Training and education 	Yes	Officers responsible for management of plantations must demonstrate competency through workplace assessment or formal qualifications. Management of harvesting and regeneration operations is the responsibility of CALM Forest Officers. These officers are required to successfully complete a range of formal and informal training courses within CALM.
<ul style="list-style-type: none"> Clearly defined roles and responsibilities 	Yes	The responsibilities of CALM and CALM's contractors are clearly defined.
<ul style="list-style-type: none"> Adequate resources 	Some	CALM acts as a management agent for plantation investors and charges a management fee. State owned plantations operate as business units and are self funding. Resources are adequate to manage harvesting and regeneration operations in native forests, but insufficient to manage the increasing amount of forest protest activity.
<ul style="list-style-type: none"> Provision for corrective action 	Yes	There is plenty of provision in contracts and in the Codes and Manuals to enforce corrective action.
<ul style="list-style-type: none"> Penalties for breaches 	Yes	The Harvesting Code allows CALM to apply penalties, although this is not a common occurrence. Breaches of the plantation Code are enforced through relevant Acts and Regulations.
<ul style="list-style-type: none"> Independent dispute resolution 	No	In the event of a dispute, CALM's Executive Director, or his authorised representative, is required to make judgement. If the judgement doesn't satisfy a contractor or log buyer, there is provision in the contracts for the matter to be dealt with through the State's arbitration system.
<i>Monitoring</i>		
<ul style="list-style-type: none"> Monitoring compliance with standards 	Yes	The Manuals contain detailed guidelines and specifications regarding the monitoring, checking and recording of completion of contract operations. CALM employs internal auditors to monitor compliance with Codes and internal specifications. Private plantation growers elect either to employ internal auditors or contact an independent organisation to carry out audits.
<ul style="list-style-type: none"> Monitoring the efficacy of standards 	Some	There have been several research projects to monitor the effects of forestry operations on specific values. Continuing research is required to monitor the efficacy of prescriptions for other values.
<ul style="list-style-type: none"> Independent audit of compliance 	Yes	CALM has an internal Audit Management Branch, although some (critics) would not consider this to be "independent". Under the plantation Code growers are required to audit compliance. Some choose independent auditors while others,

		like CALM, use internal systems. This may change with the review of the plantation Code that is underway.
<ul style="list-style-type: none"> Public reporting of results 	No	Results of CALM's internal audits are not made public.
Review and improvement		
<ul style="list-style-type: none"> Commitment to continuing research and development 	Yes	CALMScience Division is committed to continuing research and development, although this is not specifically stated in the Harvesting Code or Manual. There is a commitment to R&D in the plantation Code
<ul style="list-style-type: none"> Formal process for independent review and revision of the Code, including public input 	No	The Harvesting Code and Manual are constantly under review within CALM, but this is a relatively informal process. The public is not invited to input at this level, but rather through the formulation of the forest management plans from time to time, including the recent RFA process. The Plantation Code is subject to periodic review and all stakeholders are invited to contribute.
Queensland (compiled by Rebecca Williams)		
Legislative framework		
<ul style="list-style-type: none"> Clearly defined objectives 	Some	The <i>Forestry Act 1959</i> is currently under revision.
<ul style="list-style-type: none"> Provision for the key components of a forest practices system 	Some	Planning and Codes are proposed to have legislative basis in the revised <i>Forestry Act</i> .
<i>Regulatory approach</i>		
<ul style="list-style-type: none"> Application to all tenures 	No	Applies to operations conducted on specific public land tenures under the <i>Forestry Act 1959</i> .
<ul style="list-style-type: none"> Appropriate blend of regulatory strategies 	Yes	DNR is the custodial manager and regulatory agency for commercial activities and DPI Forestry is the commercial manager.
<ul style="list-style-type: none"> Involvement of key stakeholders 	Some	Some formal structures exist such as the Minister for Primary Industries Private Forestry Advisory Committee and structures for input into the RFA.
<i>Planning</i>		
<ul style="list-style-type: none"> Comprehensive standards and guidelines within a Code of Practice 	Yes	A Code has been implemented for Native Forest Timber Production. Codes covering plantations, grazing, recreation, fire, extractive industries and general forest products are in various stages of development. Additionally a code, to be used for self-assessment for private forest managers under the <i>Integrated Planning Act 1997</i> , is under development. Comprehensive internal standards and guidelines are also available in a number of manuals such as the Silviculture Manual, Fire Management Manual and the Harvesting, Marketing and Resource Management Manual.
<ul style="list-style-type: none"> Preparation of strategic and operational plans 	Yes	The Multiple Use Planning System is being carried out throughout the State. Three Year rolling plans are required for timber harvesting. Operational plans are required for all operations that involve forest roading (including quarries) or harvesting. DPI F has in place an internal planning system ranging from the corporate plan to site specific silvicultural and harvesting plans.
<ul style="list-style-type: none"> Streamlined approach 	Yes	The <i>Integrated Planning Act</i> provides the opportunity for new

with respect to other Acts and planning systems		forestry developments constituting a material change of land use to follow standards comprising elements of DNR codes.
<ul style="list-style-type: none"> Public access to information 	Yes	The <i>Freedom of Information Act</i> sets out the access to policy documents. This is further elaborated in DPI's document "Statement of Affairs". Copies of codes are available to the public upon request.
<i>Implementation and enforcement</i>		
<ul style="list-style-type: none"> Training and education 	Yes	Accreditation of chainsaw operators is required. Industry training on the Native Forest timber production code has occurred but there is not a formal accreditation scheme for operators on State forests. Formal training is required to qualify as a Forest Officer under the <i>Forestry Act 1959</i> . DPIF is moving towards implementing harvesting and silviculture contractor accreditation as a mandatory requirement for carrying out commercial activities on State forests.
<ul style="list-style-type: none"> Clearly defined roles and responsibilities 	Yes	Institutional and contractual roles and responsibilities are relatively clear. A Memorandum of Understanding and Operational Guidelines provides the basis for the Departments' relative roles and responsibilities.
<ul style="list-style-type: none"> Adequate resources 	Some	Resources are adequate for the public sector but not for the private.
<ul style="list-style-type: none"> Provision for corrective action 	Yes	Forest Officers have the power to stop work and/or correct problems. A deposit lodged with DPIF can be used to correct problems if the operator does not do so satisfactorily. Corrective action requests (CARS) form a component of internal and external audits. An incident report procedure has been implemented under the DPIF EMS.
<ul style="list-style-type: none"> <i>Penalties for breaches</i> 	Yes	Penalties can be imposed through the sales agreement, which sets the terms and conditions for operations. These usually take the form of suspension of activities or termination of the agreement. The <i>Forestry Act 1959</i> has provisions for imposing penalties for non-compliance.
<ul style="list-style-type: none"> <i>Independent dispute resolution</i> 	Yes	The <i>Integrated Planning Act 1997</i> provides for dispute resolution through the Planning and Environment Court. The MOU has a dispute resolution procedure for issues between DPIF and DNR.
<i>Monitoring</i>		
<ul style="list-style-type: none"> Monitoring compliance with standards 	Yes	DPI Forestry has an internal monitoring system in place as part of their Environmental Management System. Completion reports are prepared for all major sales.
<ul style="list-style-type: none"> Monitoring the efficacy of standards 	Some	There are research projects underway to monitor the effects of forestry operations on specific values. Continuing research is required to monitor the efficacy of prescriptions for other values.
<ul style="list-style-type: none"> Independent audit of compliance 	Yes	DNR Forest Resources audits (target 10%) completed sales, to assess compliance with environmental standards. DPI Forestry audits District Operations as part of its EMS.
<ul style="list-style-type: none"> Public reporting of results 	Yes	Results of the independent audit (by DNR) are reported in an annual report summarising levels of compliance and key suggested improvements for Codes or other procedures. DPIF is committed to public reporting on environmental issues.
Review and improvement		
<ul style="list-style-type: none"> Commitment to continuing research and development 	Yes	The Environment Policy of DNR Forest Resources commits to continuing review and improvement through amongst other things, research and development. DPIF are also committed to

		continuing review and improvement through their EMS.
<ul style="list-style-type: none"> Formal process for independent review and revision of the Code, including public input 	Yes	The Codes underwent an independent review as part of the RFA process.
New South Wales (compiled by Norm Hawkes)		
Legislative framework		
<ul style="list-style-type: none"> Clearly defined objectives 	Some	Outcome processes from the <i>Forestry and National Park Estate Act</i> – Forest Agreements and Integrated Forest Operations Approvals (IFOA) set goals and standards for sustainable management of public forests. The <i>Timber Plantations (Harvest Guarantee) Act</i> and regulation set standards for harvesting of public and private registered plantations
<ul style="list-style-type: none"> Provision for the key components of a forest practices system 	Some	Current Codes of Practice appended to Forest Agreements for three eastern NSW regions
<i>Regulatory approach</i>		
<ul style="list-style-type: none"> Application to all tenures 	Some	Four codes of practice currently apply only to Crown-timber lands (including State forests) defined under the <i>Forestry Act</i> . A Code of Practice applies to harvesting registered plantations under <i>Timber Plantations (Harvest Guarantee) Act</i> . A Code of practice for clearing for plantations is in preparation under the <i>Native Vegetation Management Act</i> .
<ul style="list-style-type: none"> <i>Appropriate blend of regulatory strategies</i> 	No	Work in progress under the Forest Agreement banner to rationalise codes of practice to provide for an agreed “of right” land use provisions for forestry under State planning legislation
<ul style="list-style-type: none"> <i>Involvement of key stakeholders</i> 	Some	Formal structures are proposed to provide representation and input as a result of Forest Agreements.
<i>Planning</i>		
<ul style="list-style-type: none"> Comprehensive standards and guidelines within a Code of Practice 	No	See – “Application to all tenures”
<ul style="list-style-type: none"> Preparation of strategic and operational plans 	Some	Strategic planning for public forests is provided for in Forest Agreements and IFOA. It is proposed that strategic planning be required for private native forests. Harvest plans are required for all public forests and registered plantations (including roading). Other operations are not currently covered.
<ul style="list-style-type: none"> Streamlined approach with respect to other Acts and planning systems 	Some	The Forest Agreement proposes integrated approach to dealing with legislative requirements by January 2001.
<ul style="list-style-type: none"> Public access to information 	Some	Policy and code development follow accepted public participation procedures. Individual planning and operational activities for public forests dealt with in consultation with directly affected parties e.g. neighbours. All plans for public forests are available for scrutiny once prepared. No equivalent procedures for private forests and plantations.

<i>Implementation and enforcement</i>		
<ul style="list-style-type: none"> • Training and education 	Some	Formal training in forest practices is carried out for public forest managers, other forest workers and harvesting industry operators.
<ul style="list-style-type: none"> • Clearly defined roles and responsibilities 	Some	Institutional and contractual roles and responsibilities for public forests are relatively clear, despite periodic changes in relationships. No similar role models exist for private native forests or small plantations in private ownership.
<ul style="list-style-type: none"> • Adequate resources 	Some	Most sectors are developing resources.
<ul style="list-style-type: none"> • Provision for corrective action 	Some	Action to ensure harvest compliance and sanctions for non-compliance is currently differentially administered between a number of regulating agencies under their own legislation.
<ul style="list-style-type: none"> • Penalties for breaches 	Yes	Penalties can be imposed as fines by: <ul style="list-style-type: none"> ▪ NSW Environment Protection Authority (<i>Protection of the Environment Operations Act</i>); ▪ National Parks and Wildlife Service (<i>National Parks and Wildlife Act, Threatened Species Conservation Act</i>); ▪ State Forests NSW (<i>Forestry Act</i>); ▪ NSW Department of Conservation and Land Management (<i>Native Vegetation Management Act, Soil Conservation Act</i>).
<ul style="list-style-type: none"> • Independent dispute resolution 	No	
<i>Monitoring</i>		
<ul style="list-style-type: none"> • Monitoring compliance with standards 	Some	Monitoring is only applied to specific aspects of public forest operations, focused on harvesting. State Forests NSW has a four-tiered management audit and review system. NSW EPA audits compliance with a Pollution Control Licence covering public forests. Initiatives to introduce an EMS based Native Forest Management System and plantation Management System based on ISO 14001/EMS principles are included in the Forest Agreement.
<ul style="list-style-type: none"> • Monitoring the efficacy of standards 	Some	There have been several research projects to monitor the effects of forestry operations on specific values. Continuing research is required to monitor the efficacy of prescriptions for other values.
<ul style="list-style-type: none"> • Independent audit of compliance 	No	
<ul style="list-style-type: none"> • Public reporting of results 	Some	Results of audits for public forests are reported in State Forests NSW <i>Annual Report</i> and annual <i>Environmental and Social Values Report</i> .
Review and improvement		
<ul style="list-style-type: none"> • Commitment to continuing research and development 	Some	Some ongoing research into compliance benchmarks for forest soil and water protection and wildlife protection in public forests is undertaken by State Forests NSW as part of its licensing obligations to NSW NPWS and NSW EPA.
<ul style="list-style-type: none"> • Formal process for independent review and revision of the Code, including public input 	Some	Codes of practice for public forests are subjected to formal exhibition and review procedures.

Victoria

(compiled by Gerard Stewart)

<p>Legislative framework</p>	
<ul style="list-style-type: none"> Clearly defined objectives 	<p>The purpose of the Code is explained. Includes reference to the ecologically sustainable management of public and private native forests.</p>
<ul style="list-style-type: none"> Provision for the key components of a forest practices system 	<p>Contained within the Code. The Code is prepared under provisions of the <i>Conservation, Forests and Lands Act 1987</i>. The Code was ratified by both houses of State Parliament in 1989; revision likewise ratified in 1996.</p>
<p><i>Regulatory approach</i></p>	
<ul style="list-style-type: none"> Application to all tenures 	<p>Code applies to private and public tenures. <u>Public land</u>: Code applies through conditions of licence. <u>Private land</u>: Code applies through municipal planning schemes.</p>
<ul style="list-style-type: none"> <i>Appropriate blend of regulatory strategies</i> 	<p><u>Public land</u>. Regulated by State Government agency (NRE); operations supervised by NRE officers*. <u>Private land</u>. Self-regulation, monitored by local government (municipalities). Pilot scheme recently trialed in which only accredited personnel plan and monitor operations.</p>
<ul style="list-style-type: none"> <i>Involvement of key stakeholders</i> 	<p>Formal structures exist to provide representation and input by key stakeholders. The “Code of Forest Practices Implementation Working Group” has operated since 1988/89; this group, made up of industry, contractor, union, local government, plantation owner and NRE representatives meets 4 times per year and oversees the implementation of the Code.</p>
<p><i>Planning</i></p>	
<ul style="list-style-type: none"> Comprehensive standards and guidelines within a Code of Practice 	<p>The Code lays down goals and guidelines applying to timber production. The Code also includes a few Statewide prescriptions. The Code requires comprehensive prescriptions to be developed on a regional basis.</p>

<ul style="list-style-type: none"> Preparation of strategic and operational plans 	<p><u>Public land.</u> Ten year Forest Management Plans are prepared for each Forest Management Area. Three year Wood Utilisation Plan. Operational plans for all operations that involve harvesting, roading or reforestation.</p> <p><u>Private land.</u> Operational plans for harvesting operations.</p> <p>Note: RFAs also apply.</p>
<ul style="list-style-type: none"> Streamlined approach with respect to other Acts and planning systems 	<p>Code relates to relevant legislation and policies.</p> <p><u>Private land:</u> <i>Planning and Environment Act</i> and planning schemes.</p>
<ul style="list-style-type: none"> Public access to information 	<p><u>Public land.</u> Public consultation during strategic planning processes. Operational plans available for public perusal.</p> <p><u>Private land.</u> Operational plans lodged with municipality and are available for public perusal.</p>
<i>Implementation and enforcement</i>	
<ul style="list-style-type: none"> Training and education 	<p><u>Public land.</u> Forest officers (NRE) are trained in Code implementation matters. Harvesting sector workers are required to hold a Forest Operator’s Licence, which requires accreditation in work skills (chainsaw operator, faller, machine operator, log truck driver) and completion of basic environmental care and OH&S courses.</p> <p><u>Private land.</u> Municipalities not compelled to employ trained personnel. (See also “Regulatory approach” above.) Harvesting sector workers generally hold Forest Operator’s Licence.</p>
<ul style="list-style-type: none"> Clearly defined roles and responsibilities 	<p><u>Public land.</u> Very clear*.</p> <p><u>Private land.</u> Clear, although municipalities often do not have adequate expertise.</p>
<ul style="list-style-type: none"> Adequate resources 	<p><u>Public land.</u> Most sectors have sufficient resources.</p> <p><u>Private land.</u> Municipalities often do not have adequate expertise.</p>
<ul style="list-style-type: none"> Provision for corrective action 	<p><u>Public land.</u> Under conditions of licence, harvesting sector operators must comply with NRE directions.</p> <p><u>Private land.</u> The <i>Planning and Environment Act</i> provides for work cessation and corrective action.</p>
<ul style="list-style-type: none"> Penalties for breaches 	<p><u>Public land.</u> Each operator is responsible for his/her own actions. A penalty points system applies. Suspension of Forest Operator’s Licence occurs when the accumulation of points reaches certain thresholds.</p> <p><u>Private land.</u> Penalties can be imposed through prosecution under the <i>Planning and Environment Act</i>.</p>
<ul style="list-style-type: none"> Independent dispute resolution 	<p><u>Public land.</u> A Forest Operator’s Licence holder can dispute a points allocation. All disputes are investigated by the “Review Officer” (an “independent” NRE officer) and subsequently adjudicated by a delegated officer of the Secretary of NRE. Although this process may appear to lack full independence, it has been in place for ten years and has met with key stakeholder approval during that time.</p> <p><u>Private land.</u> Through the Victorian Civil Administrative Tribunal.</p>
<i>Monitoring</i>	
<ul style="list-style-type: none"> Monitoring compliance with standards 	<p><u>Public land.</u> Operations supervised by NRE officers; completed coupes inspected for compliance and signed off by NRE*.</p> <p><u>Private land.</u> Self regulation. Municipalities responsible for monitoring compliance.</p>

<ul style="list-style-type: none"> Monitoring the efficacy of standards 	<p>There have been several research projects to monitor the effects of forestry operations on specific values. Continuing research is required to monitor the efficacy of prescriptions for other values.</p> <p><u>Public land.</u> Annual audits of compliance with the Code and prescriptions include auditors' comments on the appropriateness and effectiveness of prescriptions. (See "Compliance audits" below.)</p>
<ul style="list-style-type: none"> Independent audit of compliance 	<p><u>Public land.</u> All NRE supervised coupes are checked for compliance at completion of harvesting. NRE also conducts annual Statewide audits of compliance using a specific procedure and specialist staff generally from outside the audited area. Approximately 5% of the year's completed coupes are audited (eg. 35 of the 700 completed coupes).</p> <p><u>Private land.</u> Not standard practice. Some forest owners conduct own internal audits.</p>
<ul style="list-style-type: none"> Public reporting of results 	<p><u>Public land.</u> Results of annual Statewide audit are reported in specific publication available to the public.</p>
<p>Review and improvement</p>	
<ul style="list-style-type: none"> Commitment to continuing research and development 	<p>NRE funds relevant research (e.g. Centre for Forest Tree Technology, CRC for Catchment Hydrology.)</p>
<ul style="list-style-type: none"> Formal process for independent review and revision of the Code, including public input 	<p>First Code (1989) reviewed by consultant (CSIRO); public submissions also considered. Revised Code (1996) to be reviewed within ten years.</p> <p><u>Public land.</u> Regional prescriptions revised periodically to take account of new information and experience.</p>
	<p>* In the majority of State forest, harvesting operations are planned and supervised by NRE staff. However, in East Gippsland Forest Management Area, as part of the large contract in place between NRE and a logging company, the logging company is also required to supervise harvesting operations and sign off coupes.</p>