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Creating a viable farm forestry industry in Australia What will it take?

**A report for the
RIRDC/LWRRDC/FWPRDC
Joint Venture Agroforestry Program**

by Jason Alexandra and Michael Hall

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Foreword

In 1996 the RIRDC/LWRRDC/FWPRDC Joint Venture Agroforestry Program published a resource kit titled *Commercial Farm Forestry in Australia, Development of a Strategy Framework*. This publication identified a number of impediments to the widespread adoption of commercial farm forestry. In order to address some of these impediments the Joint Venture Agroforestry Program commissioned four projects designed to:

- strengthen links between farm forest growers and the forest industry;
- identify policy reforms for farm forestry;
- identify opportunities for harvesting trees on farms; and
- identify opportunities for processing wood products on farms.

This report identifies a range of policy issues impacting on agroforestry and develops recommendations for targeted and comprehensive reforms to government policies and industry practices which currently impede agroforestry.

The report also identifies adoption of effective agroforestry policy reforms, in line with the National Forest Policy Statement, the National Plantations Advisory Committee Recommendations, and the Industry Commission Inquiry on adding further value to Australia's forest products.

This report was developed from a discussion paper which summarised major impediments to farm forestry, and opportunities for overcoming them. The issues identified in the discussion paper were exposed to a wide cross section of industry, government and community interests across the country through discussions and workshops. The resulting recommendations in this report should assist the process of policy debate and reform.

Peter Core
Managing Director
Rural Industries Research and Development Corporation

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We would also like to acknowledge the Joint Venture Agroforestry Program and to thank the officers of RIRDC who have administered the project.

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Table of Contents

ABBREVIATIONS	IX
EXECUTIVE SUMMARY	XI
1. PROJECT OVERVIEW	1
1.1 Introduction	1
1.2 Approach and methods	1
1.3 Critical questions	2
2. SUMMARY OF RESPONSES TO KEY QUESTIONS	4
2.1 What needs to happen if Australia is to realise the potential benefits of widespread adoption of farm forestry? Who needs to do what?	4
2.2 What is the role of governments in relation to private forestry? What should it be?	5
2.3 Are governments adopting a coherent ‘reform agenda’ which supports the growth of private forestry? Why have they not implemented the recommendations of previous inquiries?	6
2.4 Are fair conditions for private growers being established?	6
2.5 What will growers and industry need to do and will adjustments to commercial arrangements be necessary?	7
2.6 Can investors, both private and institutional, invest in farm forestry with any confidence?	8
2.7 Will plantings increase and will these new plantings be directed with better knowledge and planning systems?	9
2.8 How can market requirements and grower’s needs be aligned?	10
2.9 What is the role of local government in planning and regulating farm forestry?	12
2.9.1 Local government’s role – a case study	13
3. FARM FORESTRY IN CONTEXT – A TEST CASE FOR ESD?	15
3.1 ESD, the revegetation groundswell and the forest conflict	15
3.2 Farm forestry a test case for ESD?	16
3.3 National and global trends and their implications for farm forestry	16
4. THE NATIONAL POLICY CONTEXT	19
4.1 National forest policies	19
4.2 National Competition Policy	20

4.3	Conflict, controversy and the ferment of policy development	20
5.	DOING IT TOUGH – FROM POLICY TO PRACTICE	23
5.1.	Policy factors slowing farm forestry development	23
5.2.	Clarify the roles of government	24
5.3	An international focus for Australian forestry?	25
5.4	A new plantation paradigm	26
5.5	Planning to maximise the benefits from farm forestry	28
5.6	Assessing benefits – competition or complementary plantings?	29
6.	TYPES OF FARM OR PLANTATION FORESTRY AND ASSOCIATED POLICY IMPLICATIONS	30
6.1	Defining the categories of farm forestry	30
6.2	Large-scale tree farms – industrial plantations	30
6.3	Government-funded plantation expansions or joint ventures	33
6.4	Tax-driven or investment plantings	34
6.5	Experimental and grant-driven demonstration and landcare plantings	34
6.6	Integrated farm forestry, 'diagnosis and design' plantings, and specialist crop trees	34
7.	SUMMARY OF THE IMPEDIMENTS	36
8.	RESPONSES AND ANALYSIS OF THE IMPEDIMENTS IDENTIFIED IN THE DISCUSSION PAPER	40
8.1.	Impediment 1. Lack of a farm forestry culture: farmers	40
8.1.1	Analysis and discussion – Impediment 1	41
8.1.2.	Consultation outcomes	42
8.1.3.	Regional variation	42
8.1.4.	Progress in implementing solutions	43
8.1.5.	The role of governments	43
8.2.	Impediment 2. Lack of a farm forestry culture: agricultural and forestry professionals	43
8.2.1	Analysis and discussion – Impediment 2	44
8.2.2	Consultation outcomes	44
8.2.3	Progress in implementing solutions	45
8.2.4	The role of governments	45
8.3	Impediment 3. Lack of a farm forestry culture: State agencies	45
8.3.1	Analysis and discussion – Impediment 3	46
8.3.2	Consultation outcomes	47
8.3.3	Progress with solutions	48
8.3.4	The role of governments	48

8.4	Impediment 4. Lack of supporting knowledge systems, and poor knowledge of many potential farm forestry species	48
8.4.1	Analysis and discussion – Impediment 4	51
8.4.2	Consultation outcomes	52
8.4.3	Progress with solutions	53
8.4.4	The role of governments	53
8.5	Impediment 5. Public agencies or private corporations? Is there a conflict of roles: government as investor, grower and regulator?	56
8.5.1	Analysis and discussion – Impediment 5	56
8.5.2	Consultation outcomes	57
8.5.3	Progress with solutions	57
8.5.4	The role of government	58
8.6	Impediment 6. Distorted or unfair log markets	58
8.6.1	Analysis and discussion – Impediment 6	59
8.6.2	Consultation outcomes	60
8.6.3	Progress with solutions	60
8.6.4	The role of governments	62
8.7	Impediment 7. Problems with Taxation	62
8.7.1	Analysis and discussion – Impediment 7	63
8.7.2	Progress with solutions	64
8.7.3	Role of governments	65
8.8	Impediment 8. Tree-tenure: lack of clear definition of title to plantations	65
8.8.1	Analysis and discussion – Impediment 8	66
8.8.2	Progress with solutions	66
8.8.3	The role of government	66
8.9	Impediment 9. Poor reputation of forestry investment companies	67
8.9.2	Background to forestry investment regulation	67
8.9.3	Investment Case Study 1: Percheron Acceptance Corporation	70
8.9.4	Investment Case Study 2: Seymour Softwoods	70
8.10	Impediment 10. Landuse controls, uncertain landuse planning rules and codes of practice	71
8.10.1	Analysis and discussion – Impediment 10	72
8.10.1	Consultation outcomes	74
8.10.2	Progress in implementing solutions	74
8.10.3	The role of governments	74
8.11	Impediment 11. Infrastructure and transport inefficiencies	74
8.11.1	Consultation outcomes	75
8.12	Impediment 12. Lack of transparent pricing – lack of clear market signals	77
8.12.1	Consultation outcomes	77
8.13	Impediment 13. Difference in scale between small independent growers and industrial processors	77
8.13.1	Consultation outcomes	78
8.14	Impediment 14. Contractors: scale of efficient operations	78
8.14.1	Consultation outcomes	79
8.15	Impediment 15. Lack of regional inventories and wood-flow plans	79
8.15.1	Analysis and discussion – Impediment 15	79
8.15.2	A role for governments	79
8.16	Impediment 16. Long-term risk and uncertainty of markets	80
8.16.1	Analysis and discussion – Impediment 16	80

8.17	Impediment 17. Industrial forestry companies changing their investments	80
8.17.1	Analysis and discussion – Impediment 17	81
8.17.1	A role for governments	82
8.18	Impediment 18. Lack of markets for environmental services and lack of cost-sharing frameworks	83
8.18.1	Analysis and discussion – Impediment 18	83
8.18.2	Consultation outcomes	83
8.18.3	progress with solutions	84
8.18.4	A role for governments	85
8.19	Impediment 19. Difficulties in attracting external investment and lack of suitable accounting standards	86
8.19.1	Analysis and discussion – Impediment 19	88
8.19.2	Consultation outcomes	88
8.19.3	Progress in implementing solutions	88
8.19.4	A role for governments	89
8.20	Impediment 20. Costs of insurance for farm forests	89
8.20.1	Analysis and discussion – Impediment 20	90
8.20.2	Consultation outcomes	90
8.20.3	A role for governments	91
REFERENCES*		92

APPENDIX 1 DISCUSSION PAPER

APPENDIX 2 PROJECT SUBMISSION

APPENDIX 3 LIST OF WORKSHOP PARTICIPANTS AND OTHER KEY INFORMANTS

APPENDIX 4 FARM FORESTRY PLANNING DEFINITIONS FOR LOCAL GOVERNMENTS

Abbreviations

AACM	Australian Agricultural Consulting and Management Pty Ltd
ABARE	Australian Bureau of Agricultural and Resource Economics
ACCC	Australian Consumers and Competition Commission (formerly ACC)
ACF	Australian Conservation Foundation
ACIAR	Australian Centre for International Agricultural Research
AFDI	Australian Forest Development Institute (now AFG)
AFG	Australian Forest Growers
<i>AFG</i>	<i>Australian Forest Growers</i> journal
AGPS	Australian Government Publishing Service
ASC	Australian Securities Commission
ATO	Australian Taxation Office
CALM	Conservation and Land Management (WA)
CIE	Centre for International Economics
CRA	Comprehensive Regional Agreement
CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DCFL	Department of Conservation, Forests and Lands (Vic.)
DCNR	Department of Conservation and Natural Resources (Vic.)
DNR	Department of Natural Resources (Qld)
DNR & E	Department of Natural Resources and Environment (Vic.)
DPIE	Department of Primary Industry and Energy (Cwlth)
ESD	ecologically sustainable development
FFP	Farm Forestry Program
IED	Income Equalisation Deposits
JVAP	Joint Venture Agroforestry Program
NAFI	National Association of Forest Industries
NFPS	National Forest Policy Statement
NPAC	National Plantation Advisory Committee
QDPI	Queensland Department of Primary Industries
RAC	Resource Assessment Commission
R&D	research and development
RDC	Research and Development Corporation
RFA	Regional Forest Agreement
RIRDC	Rural Industries Research and Development Corporation
TAFE	Technical and Further Education
WAPIS	Wood and Paper Industry Strategy

EXECUTIVE SUMMARY

Farm forestry has great potential to become a valuable contributor to Australia's economic and environmental well-being, but its development is retarded by a number of factors amenable to targeted policy reforms.

This is the report of a project which used a consultative approach to identify the crucial policy reforms needed to permit farm forestry to flourish. Farm forestry development would be accelerated by the removal of the chief cultural, market and public policy impediments, but numerous other factors will contribute to the successes or otherwise of farm forestry.

The report sets farm forestry development in context, describes the principal impediments and the options for overcoming them.

GENERAL FINDINGS

1. End the culture of blame

If the economic and environmental opportunities are to be realised, *all* major players in the farm forestry sector need to improve their performance. Effective and cooperative solutions to many of the impediments were readily identified. These could be implemented fairly simply. Continuing to shunt blame between the various parties will fail to achieve useful outcomes. Governments, industry and farmers must collectively show a willingness to advance the opportunities.

2. Governments need a coherent reform agenda

There is an urgent need to clarify the roles of government in relation to forestry in general. Direct support for farm forestry is less important than this clarification.

Historically, government policy settings have not been conducive to farm forestry. Numerous factors such as log-pricing and the fragmentation of responsibilities across the spheres of government and between agencies have hindered its development. While communication and cooperation are crucial, fundamental clarification of the role of government is necessary as the basis for institutional and structural reforms.

Governments have made unambiguous commitments to competition policy. The resultant reforms to their forestry operations should benefit farm forestry, but the wood-processing industries must be weaned off any residual expectation that it is government's responsibility to guarantee a supply of cheap and abundant raw materials.

Government support for farm forestry should not be an attempt to continue this historical role. Instead governments must ensure that their involvement in farm forestry is determined by well-defined principles which focus on advancing the public good.

Recommendation

Governments need a coherent reform agenda which results in:

- ☐ *explicit policies that define their involvement in forestry generally, and specifically clarifies their roles in relation to farm forestry;*
- ☐ *adherence to competition principles in the forest sector to ensure that publicly owned forestry enterprises do not compete unfairly with private forestry;*
- ☐ *transparency and accountability through independent scrutiny of their practices and policies;*
- ☐ *confidence among growers and investors in regulatory and planning arrangements;*
 - *ongoing investments in the innovation processes needed to accelerate farm forestry development, including sponsoring strategic and applied R&D;*
 - *assistance for industry initiation with scheduled withdrawal when private enterprise is ready to take on the commercial and further development roles; and*
 - *the formulation and implementation of cost-sharing arrangements based on a fair split between public and private costs and benefits.*

3. Recognise regional diversity and transfer best-practice solutions

There is substantial regional diversity. Different regions have vastly different historical, cultural, policy and physical circumstances which affect farm forestry. Regionally developed solutions will be required in some cases, but many best practices and simple solutions could be applied nationally. Much can be gained from cross-region and interstate transfer. Formal mechanisms are required to support this.¹

Solutions developed in one region can be transferred into other regions with similar problems. For example, the application of local government planning systems based on the Tasmanian Private Timber Reserves would overcome the uncertainty and concerns caused by restrictive planning policies. A national approach to landuse planning and tree-tenure legislation would avoid duplication and the development of more complex, costly or confusing procedures.

Advisory or policy forums should move rapidly to have all States adopt the simple and proven solutions.

Recommendation

The Ministerial Council for Forestry, Fisheries and Aquaculture, or its standing committee on forestry, should examine the potential for transferring best practice in farm forestry policy so that proven solutions can be applied nationally. High priority should be given to implementing a standardised approach to landuse planning and tree-tenure legislation. The Tasmanian Private Timber Reserves system should be examined to see if it can act as a model.

4. Develop simple networking tools

National programs such as the Commonwealth Farm Forestry Program and the Joint Venture Agroforestry Program should invest in simple communication and networking tools to fulfil the widely dispersed need for easy access to information on farm forestry.

There is a clear need for a farm forestry directory available in both hard copy and electronically, for example on the World Wide Web. At present there is no easy way of locating information

¹ The Commonwealth DPIE has been proposing the formation of a National Farm Forestry Roundtable which would have important communication roles.

from both commercial and government sources. A directory would give rapid access to interested parties in order to source potentially important information and would support the regional plantations committees so they don't each have to reinvent the mechanical tree planter or wood-flow planning methodologies.

Any directory should contain sections on:

- i. sources of information, e.g. CSIRO, State agencies, consultants, including key references, available models and databases, e.g. PLANTGRO, TOPOG, TREEDAT;
- ii. suitable technology for establishment, management, harvesting and processing including information on planters, direct seeders, pruners, mobile sawmills etc.;
- iii. sources of technology;
- iv. conceptual tools, including:
 - how to do a wood-flow plan;
 - how to create an inventory of existing farm forestry species in the area;
 - how to establish a farm forestry cooperative;
 - commercial options like joint venture options and who has them available;
 - methods for selecting species, and identifying species for further investigation;
 - examples of how farm forestry can be incorporated into catchment planning;
- v. sources of seed and selected plant materials for farm forestry use.

Recommendation

The Commonwealth Farm Forestry Program and the Joint Venture Agroforestry Program should invest in simple communication and networking tools to fulfil the need for easy access to information on farm forestry.

GROWERS AND INDUSTRY

5. Improve representation of farm forestry interests

Forest debates are dominated by major players: corporate processors, industry associations, other lobby groups, and government agencies. Non-industrial, private growers feel disenfranchised. They believe that major policy decisions continue to be made in ignorance or neglect of their concerns and of the opportunities that private and farm forestry offers.

Implications of policy decisions on farm forestry should be considered by governments, and farm forestry interest should be formally represented in policy development processes. To improve this representation it is important that growers and enthusiasts develop a critical mass through joining or supporting the existing organisations which have proven capable of formal advocacy, such as the Australian Forest Growers (AFG) and the Tasmanian Farmers and Graziers Association. While some growers are already members of these groups, a fuller recognition of the importance of representative organisations is required.

6. Cultivate independence: from interest to self-reliance

The widespread interest in farm forestry, demonstrated by attendances at field days and seminars, presents a rare opportunity. Governments could play an important part in transforming this enthusiasm into lasting self-supporting industries or institutions such as cooperatives, industry or regional associations.

Development of independent regional farm forestry organisations (cooperatives, networks or associations) is widely supported. Regional projects funded by the Commonwealth Farm Forestry Program (FFP) could provide the foundation for ongoing and self-reliant industry structures. To create persistent structures, the project managers (regional plantation committees etc.) and funding agencies must focus on long-term development issues.

Recommendation

Governments could play an important part in galvanising current enthusiasm for farm forestry into lasting self-supporting institutions. The FFP-funded regional projects could provide the foundation for self-reliant industry structures. Project managers (e.g. of regional plantation committees) and the funding agency must be willing to focus on long-term development issues that extend beyond the life of their current projects.

7. Support cooperatives

An undue reliance on government will impede the development of farm forestry and maintain the expectation that timber-growing is mainly a government responsibility. A willingness by growers and industry to organise in ways which recognise each other's needs is crucial. Appropriate ways of apportioning and sharing the risks intrinsic to forestry production need to be transferred into commercial practice.

Methods of organising multiple growers into ways that achieve economies of scale and bargaining power require development.

The emerging farm forestry cooperatives deserve support from both industry and growers. For industry they provide an important opportunity to overcome the problems of organising supply from a multitude of small growers within a region. For growers they generate large-scale marketing capacity and bargaining power, and provide important opportunities for information exchange.

POLICY AND LEGISLATION

Achieving the supporting or enabling policy environment in which farm forestry flourishes could be considered a test case of the usefulness of the various national policies on sustainable landuse and rural industry development.

The implementation of ecologically sustainable development (ESD) policies can be difficult, when doing so confronts values and assumptions, threatens vested interests and lowers expectations of profit. The status quo can exert great inertia on the necessary reform processes.

The forestry profession, and the State Government agencies responsible for forestry, may be a major source of the inertia slowing farm forestry in Australia. The State agencies not only provide most of the advice to governments on forest policy and management, but also carry out

forest policy and manage sizeable forest-growing enterprises. The potential for conflict of interest is large. This is exacerbated by what is politely called ‘institutional capture’.²

The relationship between the forest industries and the State forest and plantation agencies is established to such an extent that it could be described as mutually co-dependent. Professional cultures or guild connections are likely to remain a powerful influence despite recent attempts to separate responsibility for forest policy and forest management.

The political dynamics of the sector could change as a result of vocal, independent growers who regard the States as one of their competitors. The emergence of organised growers, combined with increased public sector scrutiny in the era of competition policy, could threaten the interests currently served by the existing institutional and professional paradigms.

Recommendation

When attempting major reforms such as those outlined in the National Forest Policy Statement, Government should establish committees of review which are independent of the agencies responsible for, or affected by, the reform process. These committees would perform an oversight role and provide an independent channel of advice to ministers, Ministerial Councils and other policy forums. They should be selected from a range of disciplines and from advocacy groups involved in, or affected by, forestry policies.

8. Differentiate aspects of forest policy

The ongoing confusion and conflict over forest policies has hindered the development of farm forestry. In some parts of Australia the conflict over native forest management has dampened confidence in timber-growing and engendered doubts about rights to harvest in the future.

At a political level, explicit support for farm forestry is required. Government policies and programs must clearly differentiate between industrial plantations, public native forest management and farm forestry, so that they are properly targeted. While there are common issues, the lumping of all forestry together tends to blur the issues that are important to farm forestry in Australia.

Recommendation

All spheres of Government must ensure that their policies and programs clearly differentiate between industrial plantations, public native forest management, and farm forestry.

A clear set of principles is needed to inform government involvement. These must allow for the differentiation of the public and private goods to be gained from farm forestry.

9. Adopt a holistic approach to trees in the landscape

Coherent and holistic policies are required which specifically recognise private forest management issues. In regions with sizeable areas of native forest in private ownership (Tasmania, NSW, WA and Queensland) the lack of a coherent approach to commercial private forestry – whether native or planted – tends to confound farm forestry.

² Institutional capture refers to the situation which can develop when an industry and its regulators develop such a close and well-established relationship that the regulatory agency fails to protect the wider public interest and sees industry advancement as its primary duty. Thus it is ‘captured’ by an industry.

Care needs to be taken with planning and policy distinctions based on whether trees are planted or allowed to remain, grow or regenerate. A holistic approach to the management of trees in the landscape is needed that appreciates the range of management options available to landholders.

For example, in northern NSW options for improving management of private native forests are under-resourced, while government-funded plantations, including joint ventures, are being expanded. The government budget for plantations is large relative to expenditure on improving management of private native forests, despite these forests being the major log supply in the region.

Programs aimed at improved management of private native forests and regrowth are urgently required, but there is a strong perception that because native forest issues are controversial State and Commonwealth programs have focused on tree-planting to the exclusion of forest management.

Recommendation

The importance of privately managed native forests must be recognised and governments must be willing to broaden the focus of their programs even if this results in some controversy. A strict focus on planted trees on farms or plantation forestry obscures other possibilities for wood production including improved management of private regrowth forests, or strategies to sponsor natural regeneration. Within each wood-producing region governments need an accurate analysis of the options and the costs and benefits of various interventions before investing in any particular approach.

10. Introduce uniform tree-tenure legislation and guaranteed rights to harvest

A uniform national approach to the introduction of simple and effective tree-tenure legislation and systems which guarantee rights to harvest will do much to overcome concerns about security and tenure held by growers and investors.

Recommendation

All State Governments should introduce simple and effective tree-tenure legislation and systems which guarantee rights to harvest farm forests. If these are not uniform they should at least adhere to a common set of principles.

11. Beware of policy diversion

Deep suspicion of government agencies, and serious doubts about their effectiveness, was a common theme throughout the consultation process. Historically, farm forestry has not been well recognised by forestry, agricultural or industry agencies. Many individuals have advanced farm forestry in the absence of government support, and enthusiasm has grown.

With the recent increases in Commonwealth funding, diversion of program funds to activities other than those that will advance the policy goals are a recognised threat. Now that farm forestry has gained in status and legitimacy, there is a tendency to place plantation and private forestry activities under the farm forestry banner.

12. Broaden the focus of plantation policy

Locations of industrial plantations are, or will be, determined by biophysical conditions (soils, climate) and distance to export or processing facilities. In addition to these physical factors, the attractiveness of a country to international investors is determined by a wider range of considerations, such as political stability, labour market and taxation regimes.

Industrial plantations will almost certainly continue to expand in Australia. However, those regions currently attracting plantation investment should not alone determine where farm forestry program efforts are located. Large areas of land biologically suited to wood production will not fall within the regions preferred for industrial plantations. Policies which support farm forestry development in other regions should be adopted, because if these are successful they will yield significant national benefits.

Recommendation

The current attractiveness of certain regions for industrial plantations should not be the sole determinant of the focus or location of plantation and farm forestry programs.

Expansion of industrial plantations should primarily be based on allowing market forces to rule. Governments should concentrate their efforts on providing sufficient certainty to domestic or international investors through their roles in investment regulation and landuse planning.

Policies that support extensive farm forestry development in regions that are currently less attractive to investment should be investigated.

13. Recognise the limits of industrial plantations

Integrated farm forestry is substantially different from industrial plantations and therefore requires a different policy approach if the nation is to realise the opportunities available. A new paradigm is required. It is simply inappropriate to attempt to transfer the existing plantation paradigm³ and expect it to work in most farm forestry situations.

Industrial plantation monocultures have traditionally been established for the singular, legitimate goal of maximising wood fibre production for industrial use. In the diversity of potential farm forestry situations there are limits to the appropriateness of industrial plantations, and this should be recognised.

In recent years the expansion of State plantations has shifted from direct investment by governments on Crown land to reforestation of land purchased, leases, or joint-venture arrangements. There is a growing fear that the forest agencies' expansion plans incorporate the rhetoric of 'integrated farm forestry' but that little else has changed.

Governments must not create a farm forestry bureaucracy that relies on shifting the focus from expanding government-funded industrial monocultures to the more politically acceptable 'farm forest' or joint-venture plantation.

³ The existing plantation paradigm is one which has developed from industrial monocultures and is highly effective at wood production but fails to address the diversity of purposes, functions and interaction in farm forestry systems.

Recommendation

Farm forestry should not be treated as a new frontier for furthering the expansion plans of State Government forest agencies. It must be widely recognised that integrated farm forestry is substantially different from industrial plantations. New approaches are required that are capable of addressing the complexity involved. It is inappropriate to attempt to transfer the existing plantation paradigm and expect it to work.

Tertiary institutions and government agencies have a responsibility to ensure that the new and old paradigms (integrated farm forestry and monoculture plantations) are understood and promoted where appropriate.

14. Introduce standard approaches to landuse planning and regulation

The use of local government's landuse planning powers to control farm forestry was seen as a major problem in all States except Tasmania, where the Tasmanian Private Timber Reserve System provides a degree of security for growers against local governments changing regulatory approaches during the life of a plantation or designated private forest. The system also provides a legislated basis for imposing standard codes of practice on private and public growers.

There is a widespread view that farm forestry should be treated consistently with other agricultural landuses and that local government has no more right in dictating how or what farmers do in forestry than they do for annual crops or livestock – imagine requiring a local government planning permit to plant potatoes or peach trees.

There is much general hostility to local government imposing planning restrictions on farm forestry, but this project identified several examples of excellent cooperation between growers and local government. In south-western WA the local shires around Albany are partners in a regional farm forestry initiative, Timber 2002 Inc. Shires, State Government departments and commercial interests are cooperating in planning infrastructure (roads, rail and ports) and working on standardised approaches to fire management.

Recommendation

All state governments should review the impact of local government's planning regimes on farm forestry developments. If necessary they should introduce statewide planning policies that overcome the current uncertainty engendered by the possibilities of local governments changing landuse planning policies within the life of a farm forest. New statewide planning policies should clearly establish the circumstances that trigger the application of restrictive planning processes to farm forestry developments. Otherwise farm forestry should be treated in a similar fashion to other agricultural crops.

INVESTMENT AND COMPETITION

15. Improve the enforcement of forestry investment schemes

The reputation of private forestry has been tarnished by the history of poorly conceived and poorly regulated investment schemes. It seems that prospectus-based investment in private forestry has been inadequately regulated. Gullible investors continue to be lured into forestry projects that have outrageous cost structures or unrealistic promises of growth and wealth.

This situation jeopardises the credibility of genuine forestry investments schemes. To restore investor confidence in syndicated forestry investments, companies should adhere to the existing

code of practice for forestry investment, and enforcement agencies should exercise greater vigilance.

Regular publication of plantation investment benchmarks would assist the buyer to be wary – *caveat emptor*!⁴

Recommendation

1. *The Australian Securities Commission (ASC) should work intensively on the regulation of forestry investment schemes. This will require increased scrutiny, increased technical capacity for review of prospectus-based investments (either in-house or through consultants), and the formal adoption and implementation of the code for investment forestry first presented to it by the Australian Forest Development Institute (AFDI, now AFG) in 1977. Predicted growth rates for forestry investment schemes should be tested against industry benchmarks and computer models currently being developed.*
2. *The Australian Bureau of Agricultural and Resource Economics (ABARE) should produce plantation investment benchmarks annually. These should be published to help investors compare costs against industry standards.*

16. Facilitate the linking of land skills and capital

Improvements in the range of investment pathways suitable for farm forestry are needed. Simple and effective investment vehicles would facilitate the linking of land, skills and capital.

The current range of commercial arrangements between growers, industry and investors offer many possibilities: land leases, annuities, joint ventures and so on. But even with this diversity the three most frequently stated commercial needs of small growers were:

- ways to ensure that fair market prices are being paid;
- ways to overcome the current lack of liquidity associated with plantation investments such as greater flexibility in trading immature plantations; and
- the creation of off-the-shelf investment vehicles designed for linking investors directly with growers.

The possibilities for design of effective and more flexible investment vehicles within existing legal constraints should be fully investigated before changes to legislation are recommended.

Recommendation

A wide range of farm forestry financing options need to be developed to the point of being commercially accepted by financial advisers and investment managers. Priorities for development include:

- *options for using private and public superannuation funds to finance farm forestry; and*
- *off-the-shelf investment vehicles which link investors directly with growers.*

⁴ *Caveat emptor* – the term used first by the Romans over 2000 years ago and still in common usage – means ‘buyer beware!’

17. Introduce standard accounting for forest agencies

Resolution of the questions pertaining to public forest valuation, accounting and market access is paramount in discussion about whether farm-grown timber will enter competitive markets.

Accurately assessing the capital values, and hence rates of returns achieved from State forests and plantations used for wood production remains a significant issue. This has major ramifications for the competitiveness of private forestry and should be resolved as soon as possible. Attempts to determine the competitive neutrality of government forestry activities will be meaningless unless effective accounting principles are established and adhered to.

Recommendation

A systematic approach to reporting and regular third-party auditing of the State forest agencies' accounts and accounting practices are required to give confidence that the management of public forest agencies is sound and that competition policies are being implemented.

An independent national accounting task force should be established to oversee reforms to the accounting and financial reporting of State forest agencies. Professionals who have publicly spoken out about the lack of transparency in the operation of the forest agency accounts should be invited to participate in the task force.

The task force should develop and oversee the introduction of:

- standardised accounting procedures for publicly owned forest agencies;*
- an accounting standard for the valuation of the capital value of publicly owned native forests used for wood production;*
- procedures to ensure consistent, open and transparent reporting of the annual forest agency accounts; and*
- systems for the competitive pricing and allocation of rights to harvest forest and plantation resources.*

18. Ensure that competitive markets operate

There are legitimate reasons why small growers are concerned about their access to competitive markets. The structure of the processing and exporting industries, dominated by a few major players, who are often both major wood producers and buyers of government-grown wood, does little for the confidence of the small grower.

Creative mechanisms may be needed to introduce market-based pricing and competitive allocation systems.

The effects of major reforms on these issues must be fully considered. For example, it is important that the privatisation of State plantations does not entrench problems of regional monopolies.

Recommendation

The Australian Consumers and Competition Commission (ACCC) should be instructed to review any major proposals to privatise or corporatise state-owned plantation enterprises in order to ensure that problems of regional monopolies are not entrenched further.

19. Competitive neutrality and independent auditing of State forest agencies

Application of the National Competition Policy (National Competition Council 1997) has great potential for the resolution of growers' concerns about the dominance of the State agencies or public corporations as log suppliers. But it is still too early to determine whether progress toward competitive neutrality is being made and how fully competition policy principles are being applied in the forestry arena.

The introduction of competitive neutrality into State-owned forest and plantation services is too recent to assess. It is therefore not possible to know whether these reforms will overcome private growers' fears. Reforms initiated to meet competitive neutrality goals should be communicated widely.

Recommendation

The ACCC and the National Competition Council should fully investigate the operation of the State forest agencies to ensure adherence to competition principles as specified in the National Competition Policy. Reforms initiated to meet competitive neutrality goals should be communicated widely.

FOSTERING INNOVATION

20. Innovation and industry 'incubators'

Farm forestry innovation is alive and well, but the realisation of demonstrable results in terms of timber production or landscape change requires patience. Government support must therefore be focused on both long-term and strategic goals.

Governments would be well advised to consider adopting an 'industry incubator' policy in an attempt to accelerate what may otherwise be a slow process.

Farm forestry support programs could be conceived of as industry 'incubators', in which solutions to long-term national goals of sustainable resource management and rural production are 'hatched out'.

Strategic government financial support could act as a stimulus to private sector investment in what may form the basis of substantial future industries. For example, there is considerable individual investment, innovation and experimentation in growing high-value specialist timber trees. This is particularly strong in the rainforest regions of northern NSW and Queensland. There is also much interest in production of specialist timbers in both the wetter and drier temperate regions.

The activity and interest in high-value specialist timber production appears far greater than its official support. Private sector enthusiasts are exploring the options, pioneering the methods, and undertaking education and extension.

Organisations like the Subtropical Farm Forestry Association or the Mary Valley Farm Forestry Cooperative are effective in these roles, but their efforts could be considerably improved if they received greater support from both government and industry.

Recommendation

Government funding programs should foster industry development. Priority should be given to new and emerging components of the sector. These include high-value and specialised timber production, technological and silvicultural innovation, and opportunities for advancing farm forestry in regions with high biological potential but relatively small prior investments in plantation silviculture.

21. Support information exchange and planning skills

Farm forestry knowledge and skills are highly dispersed. Information exchange could be improved and synergies between commercial and natural resource management goals could be exploited.

It is rare to find farm forestry options incorporated into catchment rehabilitation strategies, despite many potential synergies. Trees proposed for remediating land and water degradation could grow into a substantial future timber resource.

The collective skills, experience and technical capacity of the forestry, land management and ecological professions need to be drawn on in order to realise the commercial and natural resources management opportunities. Governments should invest in creating an informed farm forestry and revegetation workforce. At present there seems to be insufficient cross-fertilisation between the forestry and ecological professionals and those involved in many revegetation efforts.

Recommendation

Governments should accelerate effective revegetation and farm forestry implementation through continuing to support applied training and professional development programs. These programs should be designed to advance the knowledge of farm forestry applications within revegetation, catchment management and regional planning initiatives.

22. National coordination of information on farm forestry

With the exception of a handful of commercial plantation species, there is little knowledge about the performance of many potentially important farm forestry species. Many plantings are either confined to proven species or are experimental. Unfortunately these experiments lack any organised way for knowledge gained to be transferred effectively. Much species selection could correctly be described as hit or miss, but the potential for learning from the mistakes is limited, as is the capacity for building up and transferring knowledge gained from experience.

Surprisingly, the use of predictive models based on knowledge of native forest species attributes and biophysical data sets is not common in Australia. Yet the CSIRO's Australian Tree Seed Centre has used models extensively for species selection for overseas plantations.

A coordinated national system of information on commercial farm forestry needs to be developed if we are to learn from past and current plantings. Each planting is a potential trial – a source of knowledge – yet because of inadequate records and the failure to record experimental and commercial plantings using a systematic approach, many R&D opportunities are lost.

The adoption of a standardised approach to performance recording similar to that used in the livestock industry could overcome this knowledge impediment, but it requires an agreed minimum data set and some standardised terms and techniques.

Knowledge of tree performance gained from both native forests and plantations could be recorded and made available across Australia if agreement can be reached on standard assessment and reporting methods. The existing systems such as TREEDAT (Vercoe and Clark in press) should provide the foundation for such an approach. Minimum information recorded on all plantings should include:

- location in latitude and longitude;
- species (and provenance if available);
- climatic conditions and rainfall;
- site and soil characteristics; and
- establishment, management and silvicultural techniques.

Recommendation

R&D Corporations and other funding programs should not fund further farm forestry trials, modelling or data base development until a substantial review of existing models and databases is conducted and agreement is reached on how to proceed with the best national options for modelling and recording, and how to cooperatively integrate existing models and data sets held by disparate agencies.

23. Invest in crucial R&D

The numerous variables involved in farm forestry processes and the long time-frames involved pose special challenges for improvements and transfer of farm forestry knowledge.

Commitments to free flows of knowledge generated from publicly funded R&D is essential to promoting knowledge transfer.

The possible corporatisation of forestry R&D organisations and State forest agencies may make it difficult to extract information or historical records of trials. If this occurs it will severely hinder progress in bringing relevant information forward into common use, and may result in the privatisation of extensive sets of data paid for by taxpayers.

The effects of R&D can be quite substantial in overcoming technical constraints and overturning prevailing myths, thus providing greater confidence for growers, processors and investors.

Further research, development and extension work is called for on:

- silviculture systems;
- development of new treecrop options;
- appropriate processing technologies;
- understanding treecrop interactions at the farm and landscape scale; and
- improving predictive capacity and developing best-bet options based on understanding the effects of farm forestry on salinisation and other catchment processes.

Recommendation 20

Since corporatisation of forestry R&D organisations and State agencies responsible for forestry may endanger the free flow of information, R&D funding agencies should formally seek commitments within their funding contracts to ensure the free flow of knowledge generated from publicly funded R&D.

State Governments should also ensure that any corporatisation of forest agencies does not retard progress in bringing relevant information forward into common use, or result in the privatisation of extensive bodies of knowledge paid for by taxpayers.

24. Pioneer cost-sharing for environmental services

It is widely recognised that farm forestry can improve the environment, yet markets for environmental services are non-existent or minimal. Landuse policies continue to sanction or tolerate many landuse activities which have high negative externalities, while there are few direct incentives for undertaking activities which generate positive externalities, for example improving catchment health, mitigating salinity, or absorbing CO₂.

Appropriate cost-sharing arrangements capable of paying for the environmental services delivered by well-designed farm forestry plantings would redress a major inadequacy of existing natural resources management programs.

Under formalised cost-sharing arrangements, the beneficiaries of environmental services would agree to share costs according to negotiated benefit/cost-sharing contracts. For example, farm forests may perform important environmental services such as reducing waterlogging and associated salinity. Direct payment for these services is worth further serious investigation, but it is important to recognise that detailed planning is required to tailor the arrangements to specific situations.

There continues to be a conceptual rift between revegetation for environmental reasons and farm forestry aimed at integrating production and environmental goals. Landcare programs have traditionally had an agricultural perspective, while most revegetation programs have had an environmental focus. Direct purchase of environmental services may do much to overcome this conceptual rift between production and environment.

Recommendation

Publicly funded incentives could be used to lure growers/investors into catchment protection, salinity mitigation or CO₂ absorption plantings that may not be financially attractive without incentives. Incentive payments should only apply where farm forests are established on sites designated as having high value for land protection, or where environmental benefits are proven.

BUILD ON COMPARATIVE ADVANTAGE

25. Capacity to supply is a competitive advantage

The capacity to supply into increasingly competitive or volatile world markets should be regarded as a source of comparative advantage. Major users of raw wood are increasingly willing to invest in certainty of future raw materials supply to protect sizeable manufacturing investments from market volatility, increased competition or declining availability.

Growers and processors (domestic or international) have much at stake in terms of reliable supplies of raw materials and reliable markets. Increasing exposure to competition could help growers and processors form sound and respectful partnerships.

26. Internationalise Australia's forestry sector – wean industry, diversify ownership and bury import substitution

Market forecasts consistently predict an era of international opportunities. Australian farm forestry production could be well positioned to take advantage of projected increases in global demand and decreases in available supply. Such opportunities have already been acted on in other countries by governments and private investors.

An international focus is required to take advantage of these opportunities. Getting fair conditions for all prospective growers, whether they be individual farmers, small investors, corporate processors or international superannuation funds, will be necessary if Australia is to take advantage of these opportunities.

The necessary reforms may be painful to some interests, and significant resistance may be encountered, because despite the oft-heard rhetoric about forestry being market-driven, government-owned forests or plantations remain the major raw material supply. It may be difficult to wean industry, unions and professionals off the expectation that it is government's role to reliably provide abundant raw material to processors simply because of the historical dominance of the State in native forest and plantation ownership.

Public ownership could act to impede internationalisation of the sector, possibly hindering the introduction of conditions which suit free-market growers and investors.

Plans to triple the plantation area continue in the tradition of central government planning for the sector and may do little to inspire commercial confidence unless governments honour their commitments to move the forestry sector to a genuinely market-driven activity.

Recommendation

Regardless of the specific sector/s involved, governments should apply a consistent industry policy which ensures that expansion in any sector is driven by sound investment decisions disciplined by regulatory and biophysical realities.

Hard decisions are needed to achieve a diverse, export-oriented plantation industry. Governments must bury all remnants of the import substitution policies of the 1950 and 1960s, and move as rapidly as possible to an international focus. They must wean industry, unions and professionals off the expectation that it is governments' role to reliably provide abundant raw material to processors

1. PROJECT OVERVIEW

1.1 Introduction

This project used a consultative approach to identify the critical policy reforms needed to create the conditions in which farm forestry could become a valuable contributor to the economic and environmental well-being of Australia.

The project sought to answer the question, '*What will it take to create a viable, self-supporting farm forestry industry in Australia?*'. The focus was on policy rather than technical issues. It forms part of a suite of projects funded by the Joint Venture Agroforestry Program which aimed to provide a strong foundation for the development of a national farm forestry strategy.

The consultations were carried out in 1996. While we consulted widely, the authors take full responsibility for the views and conclusions expressed in this document. Neither of us claim to be completely unbiased in our assessments – in our view participatory research includes the participation of the researchers.

1.2 Approach and methods

In early 1996 a discussion paper produced by Jason Alexandra and Michael Hall was distributed widely. It described important policy impediments, and opportunities for overcoming them. Section 8 of this document reproduces the descriptions of each impediment used in the paper, followed by analysis and discussion of the consultation outcomes.

Workshops were organised to canvass the views of those with knowledge of farm forestry. The discussion paper was sent to the workshop participants with their invitations, seeking their responses at a series of full-day workshops held in regional centres and capital cities: Traralgon (Vic.), Melbourne, Adelaide, Casino (NSW), Brisbane, Launceston and Perth. Between 10 and 34 people attended each workshop.

The people invited to the workshops were chosen as active and progressive farmers, foresters, educators, and representatives of industry, governments or environmental organisations. The sample represents a significant cross-section of those involved in farm forestry. Appendix 3 lists the key participants at the workshops and other informants consulted in the project. In addition to the workshops, a number of venues and opportunities were used for formal and informal discussions on the subjects raised in the discussion paper. This approach was adopted because it enabled priority economic, environmental, and social aspects of farm forestry to be the focus of discussions.

At each workshop we asked participants to look at the recommendations in the discussion paper, both individually and in their totality, and ask the following questions:

- Are these an accurate description of the current impediments?
- Would implementing the proposed solutions be enough to create the conditions for a viable, self-sustaining farm/private forestry sector?
- What else needs to be done?

- Where changes are in process, to what extent are you confident that they will achieve their intended outcome?

The paper was also distributed to interested parties in most States, and responses solicited by phone, fax or mail. Various existing networks were also enlisted to distribute the paper more widely. For example, a comprehensive summary of it was used by Greening Australia (1996) in their paper 'Farm Forestry in Australia – Integrating Commercial and Conservation Benefits'. This was circulated to all member organisations of the Greening Australia Council. The Commonwealth Department of Primary Industries and Energy (DPIE) also circulated the discussion paper to the 1996 recipients of farm forestry grants (the recently formed regional farm forestry committees).

In addition to the formal workshop, Michael Hall and/or Jason Alexandra undertook additional discussions with farmers, private growers, industry and government persons by attending conferences and field days or on dedicated field trips in Gippsland, north-eastern Victoria, the Northern Rivers and Hunter Valley regions of NSW, and the Esperance and Albany regions in WA. These proved valuable as a means of gaining insights that might not have been forthcoming within the more formal workshop venues.

1.3 Critical questions

The following critical questions were posed to participants at the workshops and others as the principal purposes of the investigation. The following extract from page 2 of the discussion paper summarises the questions we sought to shed light on:

Despite greater recognition of farm forestry as a potentially important landuse and timber supply option, there is still much to be done before it could realistically be considered anything other than of marginal significance to Australia's agricultural and timber industries. Much has been written of the potential benefits of farm forestry, but what needs to be done to 'make it happen'?

In this project we are researching *'What will it take to create a viable, self-supporting, plantation-based, farm forestry industry in Australia?'*

We aim to get an accurate assessment of the current policy impediments restricting farm forestry development. We aim to determine to what extent these are real or perceived impediments and to identify not only what is needed to overcome them but also 'who needs to do what'.

Through this project we are seeking the advice of those involved in farm forestry on several important questions:

1. What needs to happen for Australia to realise the potential benefits of widespread adoption of farm forestry? Who needs to do what?
2. What is the role of governments in relation to private forestry? What should it be?
3. Are governments adopting a coherent 'reform agenda' which supports the growth of private forestry? Why have so many of the recommendations of previous inquiries into forestry failed to be implemented?

4. Where are we at with establishing fair conditions for private growers? Does the States' role as forest regulator and forest seller create conflicts?
5. Can investors, both private and institutional, invest in farm forestry with any confidence?
6. Will plantings increase and will these be guided by better knowledge and planning systems?
7. What will growers and industry need to do? Will adjustments to commercial arrangements be necessary?
8. How can market requirements and growers' needs be aligned?
9. What is the role of local government in planning and regulating farm forestry?

2. SUMMARY OF RESPONSES TO KEY QUESTIONS

The following section is an attempt to summarise the collective responses in order to convey a general sense of what needs to be done. We have attempted to reflect the prevailing views as expressed throughout the consultation. Where necessary, specific examples are used to illustrate the points raised, not to single out specific regional or State processes.

In Section 8 we provide detailed analysis and discussion of the individual impediments outlined in the discussion paper.

2.1 What needs to happen if Australia is to realise the potential benefits of widespread adoption of farm forestry? Who needs to do what?

Much needs to be done by all parties involved. The State and Commonwealth Governments can play critical roles in accelerating the adoption of farm forestry, and are well placed to provide strategic support for the development of the industry. Direct or indirect support cannot be used as a substitute for the numerous reforms required to the States' own forestry activities. These continue to impede confidence among private growers for the following reasons:

- the lack of transparent markets;
- the dominance of the States as suppliers of both hardwood and softwood;
- the potential for the States to have conflicting roles as operator and regulator, investor and promoter; and
- the highly politicised nature of many decisions which affect forestry.

Many private growers are not convinced that the same agency can provide impartial advice and industry development support while also operating enterprises in direct competition to private forestry. Clarifying the State Governments' role is therefore central. Industry and farmers must also show willingness to advance the opportunities. Much is possible within the existing circumstances; it is too easy to continue blaming governments for not doing enough.

Workshop participants expressed a strong desire for farm forestry to be market-driven, with no more or no less support than other primary industries. They recognised that the situation would improve if the constraints identified in the discussion paper were removed.

The discussion paper was regarded as an accurate assessment of the reforms required. While there were no major objections to the solutions proposed, certain issues had greater prominence in different States. Some impediments were regarded as 'primary' in that their removal would ensure further progress; others were considered less relevant or 'secondary' in that they would follow as a result of removing the primary impediments.

2.2 What is the role of governments in relation to private forestry? What should it be?

There is an urgent need to clarify the roles of government in relation to farm forestry. Historically, government policy settings have not been conducive to farm forestry. Numerous factors such as log-pricing and the fragmentation of responsibilities across the spheres of government and between agencies have hindered its development.

Government organisations vary enormously across the States. State plantation and forest agencies operate either as separate entities (such as corporations) or as a component of a combined primary industries department with wide-ranging responsibilities.

There is considerable disquiet that State Government departments continue as forest and plantation operator, regulator, investor, economic promoter and extension provider (in various combinations and configurations).

The highly politicised nature of native forest and plantation policy decisions does little to convince private growers that their interests are not at times sacrificed for political expediency.

Some States have separate organisations responsible for public and private forestry. For example, the Tasmanian Private Forest Division provides an agency dedicated to furthering private forestry. Despite its independence from State Forests, however, private growers are still adversely affected by the decision taken by State Forests on management issues such as guaranteed minimum sawlog quotas, pricing, or limited access to licensed exporters for chips. Other states are attempting to achieve greater coordination of the multiple agencies involved. For example, in WA the West Australian Farm Forestry Development Group was established to provide an oversight and coordination function across the numerous agencies whose decisions affect the development of farm forestry.

Before simply shifting responsibilities among existing agencies, governments need to clarify the policy principles underpinning their involvement with all aspects of forestry. This is the necessary basis for institutional and structural reforms. For example, reforms consistent with competition policy should benefit farm forestry as long as wood-processing industries are weaned off any expectation that it is government's responsibility to guarantee a supply of cheap and abundant raw materials.

Governments need a coherent reform agenda based on:

- explicit policies defining their involvement in forestry;
- clarification of their roles in relation to farm forestry;
- competitive neutrality – ensuring that publicly owned forestry operations do not compete unfairly with private forestry;
- transparency, accountability and independent scrutiny.
- the provision of certainty in regulatory and planning arrangements;
- investments in innovation, including strategic and applied R&D; and
- the formulation and implementation of cost-sharing arrangements based on a fair split between public and private costs and benefits.

2.3 Are governments adopting a coherent ‘reform agenda’ which supports the growth of private forestry? Why have they not implemented the recommendations of previous inquiries?

The State Governments do not appear to be adopting a coherent reform agenda aimed at realising the potential of farm forestry. While each State appears to have a variety of reforms which may be positive or neutral for farm forestry, none could be said to have a coherent reform program aimed at clearing the way for rapid acceleration of farm forestry. WA has had a comprehensive review and has established the Farm Forestry Develop Group mentioned above.

This project could find no explicit reason why so many well-considered recommendations from previous inquiries have not been implemented, nor why the commitments made under the National Forest Policy are taking so long to be carried out. As stated elsewhere in this report, we believe that the low priority given to implementing these commitments reflects internal tensions within the forest agencies.

If the reforms are under way in a scheduled and coherent fashion, State Governments have managed to keep this well hidden from the main constituent groups such as private growers, farmer organisations, and their own agency staff. This would demonstrate a failure to communicate adequately their intentions or plans.

Numerous reforms affect farm forestry development, but the outcomes for farm forestry seem to be incidental rather than deliberate. While it is understandable that governments do not have farm forestry as a central component of their policy platforms, it is nonetheless disappointing that a potentially important landuse seems to be caught in the cross-fire of reforms to resource agencies or in the conflicts over native forest management.

The National Forest Policy Statement (NFPS) states many desirable goals and general principles, but the failure to implement these fully may be indicative of a more general failure in the Australian policy processes.

Australia may be suffering from policy failure in many important policy arenas, such as innovation and industry development, environment, rural and natural resources policy. This is supported by Dovers (1996: 3), who suggests that Australian policy processes are characterised by ‘lurching, episodic, myopic *ad-hocery*’. All too frequently the emphasis is on the grand policy statement rather than the necessary steps of analysis, options assessment, planning and implementation, effectiveness monitoring, review and adaptation. Dovers makes it clear that effective policy processes are a pre-requisite to meeting the sustainability challenge, and that these processes require institutions with a sense of history and the capacity to adapt and refine policy. He describes this as policy learning – the policy equivalent to adaptive management. Kanowski (1997) also refers to the need for an adaptive management approach to implementing the NFPS and the Regional Forests Agreements (RFAs).

2.4 Are fair conditions for private growers being established?

Private growers recognise that they operate in markets dominated by large, vertically integrated corporations and State forest agencies. The corporations are usually both growers and processors of plantations. The State agencies own the majority of other plantations and productive native forests and have the same large companies as their main customers.

The high levels of State Government and corporate ownership of plantations makes it hard for smaller growers to compete. Fears of inappropriate pricing of public timber resources are exacerbated by the lack of consistent and transparent accounting standards for State-owned plantations or native forest. The failure to account consistently for the production costs or capital value of plantations and native forest used for wood production is a major issue.

The accounting and financial management reforms needed to satisfy these fears were outlined clearly in the Public Accounts Committee Report on the Forest Commission (NSW Parliament 1990), but the degree to which these reforms have been implemented, and their effectiveness, is unknown. This is typical of a more general problem: while there have been frequent inquiries, follow-up reviews of the implementation and effectiveness of the recommendations are rare. Is this evidence of the policy amnesia described by Dovers (1996)?

A national approach to standardised accounting, including capital accounts for public forest agencies, is urgently needed if fair conditions are to be established for private growers. Independent preparation of the accounting standards is also needed. A start has been made towards developing a national standard. The Australian Accounting Research Foundation has reviewed forestry in its discussion paper on accounting for self-generating and regenerating assets (Roberts, Staunton and Hagan 1995).

Once a standard has been adopted, external auditing of State forest agencies' accounts is required. Accounts should be publicly released and the basis for valuing and determining rates of return made explicit. Various inquiries into the operation of forest agencies indicates the need for such an approach, including the Victorian Auditor-General's Office (1993) report into Victorian forestry.

Historical valuation methods have serious shortcomings since they fail to account for the true value of publicly owned forests. Using this method, plantations are valued highly because prior investment in planting and management is carried forward with interest, while native forests have had no investment to carry forward except possibly roading costs. In NSW the average values of different forest and plantation types reflects this distortion, with softwood plantations valued at \$3916 per hectare (average), hardwood plantations at \$1145, and hardwood forests at \$88 (NSW Auditor-General 1996: 643). The Audit Office raised some concerns about the valuation but was unable to resolve them.

The resolution of capital valuations is central to determining rates of return and therefore to issues of competition with private growers.

A further requirement for establishing fair conditions for private growers is that public plantation growers should be subjected to the same regulations and made to pay the same rates, levies and charges as private growers.

2.5 What will growers and industry need to do and will adjustments to commercial arrangements be necessary?

Growers and industry can do many things to accelerate the adoption of farm forestry. An undue reliance on government will impede farm forestry development and maintain the expectation that forestry is mainly a government responsibility.

It is important that growers and industry should be willing to organise in ways which recognise each other's needs. Appropriate ways of apportioning and sharing the risks intrinsic to forestry production need to be determined and transferred into commercial practice.

It is also necessary to overcome the limited capacity of small growers to negotiate. The farm forestry cooperatives and/or networks appear to be set to play an increasingly important role. The emerging cooperatives and the regional committees sponsored by the Commonwealth FFP are potentially powerful advocates of growers' interests, and are already performing many useful functions, including:

- representing growers at a variety of forums;
- seeking markets and negotiating commercial arrangements;
- education, and the transfer of commercial and technical information; and
- exploring potential markets and options for value-adding and processing.

With the injection of Commonwealth funds into the regional projects, it is an ideal time to consider how ongoing institutions which support farm forestry development can be established. These must have planning time-frames beyond the life of government project funding, and they must aim to be self-sustaining. Over time it is conceivable that they could emerge as powerful commercial enterprises like the South African timber growers' cooperative or the dairy cooperatives in Australia (NPAC 1991).

In addition to the resourcing of these regional groups there is a need for formalising information exchange and networking. The regional groups need forums for inter-regional information exchange and a peak national body championing farm forestry. Organising into an industry body either as a component of the AFG or as a separate but affiliated organisation (similar to Plantations Australia) would be extremely useful.

AFG's history and its structure – with regional chapters – make it well suited to be the national body. The New Zealand Farm Forestry Association has played a pivotal role in the development of farm forestry in that country.

Current commercial arrangements between growers, industry and investors offer many options, for example land leases, annuities and joint ventures. But the three most frequently stated commercial needs of small growers were:

- ways to ensure that fair market prices are being paid;
- ways to overcome the current lack of liquidity associated with plantation investments such as greater flexibility in trading immature plantations; and
- off-the-shelf investment vehicles designed for linking investors directly with growers.

2.6 Can investors, both private and institutional, invest in farm forestry with any confidence?

It is difficult for grower and non-grower investors to invest with confidence in farm forestry. Apart for the obvious risk and lengthy time-frames associated with plantations, numerous other factors account for this lack of confidence:

- the chronically poor record of many forestry investment companies in Australia;
- the promotion of unrealistic expectations of profit (growth rates, markets, prices) from individual tree species or ‘novel’ investment schemes;
- the fact that forestry investment lacks many of the important characteristics of modern investment packages: flexibility, liquidity and risk-spreading;
- the lack of off-the-shelf investment vehicles/packages that link small and medium-sized investors to farm forestry operators;
- the absence of workable tree-tenure legislation, or where it exists, the lack of experience with such legislation; and
- ongoing or residual confusion about taxation treatments of plantations.

2.7 Will plantings increase and will these new plantings be directed with better knowledge and planning systems?

Farm forestry is dynamic and much innovation is present. Plantings are increasing and knowledge is improving, but technical exchange could be improved.

Knowledge and skills are both highly dispersed and localised. Information exchange could be made much more effective, and proficiency in farm, landscape or catchment design could increase. The detailed incorporation of farm forestry options into regional revegetation or catchment rehabilitation strategies is still rare. The capacity to do this is limited because of uncertainty about how many trees are required to optimise multiple benefits within specific landscapes. Agroforestry design, at both landscape and farm scales, needs to be improved, as does the technical knowledge supporting the design processes.

Improved hydrological assessment, including hydrological modelling, is frequently required to help determine the impacts of farm forestry on local and regional hydrological processes, for salinity and catchment planning.

Computer-aided planning which simulates landscapes after a certain number of years was mentioned as a possible answer to visualising changes occurring over long time-scales, but there was little actual experience of using computer simulations to assist in farm forestry planning.

There is a widely recognised need for improved knowledge transfer and ongoing commitment to free flows of knowledge generated from publicly funded R&D.

The numerous variables involved in farm forestry processes – provenances, species, soil and water interactions, site modifications, wood characteristics, markets, interactions with crops and livestock – and the long time-frames involved pose special challenges for improvements and transfer of farm forestry knowledge.

Critical knowledge gaps identified in the consultation process that are amenable to focused research, development and extension efforts include:

- silviculture – site and species selection, options for site modifications, and definitions of, and factors determining, product characteristics of farm-grown trees;

- development of new treecrop options – ongoing work on native and exotic species not yet regarded as commercial;
- wood technology – advancement in processing technologies designed explicitly for small-diameter farm-grown logs;
- treecrop interactions with soil and water at a farm or landscape scale; and
- cost-effective hydrological assessments to enable better predictions of the effects of farm forestry on salinisation and other catchment processes.

Research and development can have a substantial effect in overturning prevailing myths. In the past, for example, it has been consistently stated that it is not possible to grow hardwood sawlogs in plantations, or that long rotation times (50–70 years plus) are required to grow quality sawlogs. Yet from our consultations it was clear that the results of recent experimental sawing, drying and dressing trials of farm or plantation-grown logs undertaken in Queensland by QDPI, and in Victoria by CSIRO are having a profound effect in farm forestry circles.

These trials have determined that the sawn product characteristics of many species of young (20–45 year) plantation-grown eucalypts are suitable for furniture or finished timber products (Waugh 1996).

This relatively small R&D effort has resulted in far greater confidence in the commercial prospects of several lesser known species and confirmed the view of many farm foresters of the desirable characteristics of favoured species such as the spotted gum (*E. maculata*).

2.8 How can market requirements and grower's needs be aligned?

Social and environmental costs are rarely factored into prices paid for commodities traded on global markets. As we trade in a global economic system which ruthlessly extracts natural resources and demands delivery at competitive prices, there is no reason to expect that farm-grown wood will be treated any differently from other wood or from other commodities such as coal, wheat or wool. So far global markets appear to be incapable of showing respect for sustainability apart from the limited application of accreditation systems such as 'Woodmark'.⁵

Accreditation systems offer important prospects for farm forest production to receive market premiums. They may also overcome some of the trade-related problems of government attempting to set environmental standards for imported products. Nation-states not only have difficulty imposing higher standards domestically without exposing their productive industries to cheap imports, but attempts to restrict trade that are based on environmental values are almost certainly contestable under the GATT (French 1993). Whether markets sought for farm-grown logs are domestic or international, logs will almost certainly need to be grown and delivered into globally competitive markets for wood and wood products.

⁵ 'Woodmark' is one of many accreditation system for wood which attempts to provide an assurance to consumers that a product has been produced from a sustainable forestry system. The Forest Stewardship Council (FSC) has been established in an effort to validate the claims of timber certifiers. The Council is made up of representatives from environmental organisations, foresters, timber traders, indigenous peoples organisations, community forest associations, and forest product certification institutions. The FSC advocates third-party auditing of forest management, a "chain of custody"; to trace the forest product from forest to the market and labelling to identify the certified product.

While some may view this globalisation as a threat, the increasing exposure to competition can in fact form the basis for alignment of grower and processor interest, if sound and respectful partnerships can be negotiated. Both parties have much at stake in terms of reliable supplies/markets for the raw materials they produce/require. The capacity to supply reliably into increasingly competitive or volatile world markets should be regarded as a source of comparative advantage. Major international raw wood users are increasingly willing to invest in certainty of future supply as a means of protecting sizeable capital investments in manufacturing from volatility, increased competition or declining availability (D. Mitchell, pers. comm.; Kanda 1996).

Locations suitable for this kind of plantation in Australia are or will be limited by biophysical conditions (soils, climate, distance to ports). There are also wider considerations. The attractiveness of countries to international investors is determined by, for example, the nature of political processes, and regulatory and taxation regimes. Meynick (1996) describes the international benchmark study undertaken by Margules, Groome and Pöyry, in which Australia compares favourably on many counts with 13 other plantation-producing countries. On several other counts, however, including the dominance of public ownership, Australia ranks poorly. Meynick concluded that Australia has many impediments to forestry investment that need to be addressed if the diversity of investment is to be maintained or increased. By comparison, New Zealand appears to have established conditions that support the confidence of the grower and non-grower investor in plantation forestry, to such an extent that ownership patterns are changing significantly (Edmonds 1996).

The attractiveness of certain regions within Australia for intensive investment in industrial plantations in the locations preferred by industry should not be the sole determinant of plantation and farm forestry policy. These plantations will almost certainly proceed if governments allow market forces to rule and if they concentrate on providing sufficient certainty and regulatory rigour to satisfy domestic or international investors. A far greater percentage of the land biologically suited to commercial wood production will not fall within these preferred regions.

Adoption of policies which support farm forestry development in these regions without reverting to expensive and blunt direct subsidies poses a more substantial challenge, yet if successful will yield significant national benefits. The AACM and CIE economic model (AACM International, CIE and Fortech 1996) identified the potential combined benefits of farm forestry expansion in the sheep-wheat belt (generally beyond economic cartage distances to ports) as being significantly greater than for other farming systems or regions. Furthermore, many of these regions suffer from the professional forestry stigma of being below the 650 or 750 millimetre rainfall isohyet, and are therefore considered marginal for forestry activities.

In the preferred plantation regions, alignment of growers and market needs should be fairly straightforward, with pulpwood or other timber products being mainly market-driven or investment-driven, and therefore with no role for government investment.

Alignment of growers' needs and market requirements in the more extensive agricultural regions will require:

- courage in investment and policy;
- technical innovation;
- more substantive planning processes to accommodate more diverse and dispersed production and processing; and

- possibly major improvements in transport infrastructure.

Direct payment for environmental services is worth serious investigation where farm forestry performs reduces waterlogging and associated salinity.. Under proposed environmental cost-sharing frameworks beneficiaries of the environmental services agree to share costs according to negotiated benefit/cost-sharing contracts (AACM International 1996).

Publicly funded incentives could be used to lure growers or investors into catchment protection or salinity mitigation plantings further from major ports. These should only apply where farm forests are established on sites designated as having high value for land protection or other environmental benefits.

2.9 What is the role of local government in planning and regulating farm forestry?

Local government authorities have a diversity of roles in relation to farm forestry. It is therefore almost impossible to generalise. However, the issue of landuse controls and planning permits for farm-based forestry activities generated much heat in all States except Tasmania. There the Tasmanian Private Timber Reserve System provides security for growers against local governments changing regulatory approaches during the life of a plantation or designated private forest. The system also provides a legislated basis for imposing standard codes of practice on private and public growers.

There was a widespread, well-voiced view that local government had no more right to dictate how or what farmers do in forestry than they do for annual crops or livestock. It was often stated that farm forestry should be treated consistently with other agricultural landuses. There was little support for local government involvement in farm forestry except for theoretical cases where local authorities may be a contributor to cost-sharing.

While there was much general hostility to local government imposing planning restrictions on farm forestry, several examples of excellent cooperation either between growers and local government or between the various spheres of government were cited. Four examples stand out:

- In north Queensland 15 local shires have worked cooperatively with the State and the Commonwealth in implementing the Queensland Community Rainforest Revegetation Program, which has diverse social, economic and environmental objectives including the production of rainforest timber. In operation for less than five years, it has involved over 500 landholders in planting more than 1600 hectares (Creighton and Sexton 1996).
- In south-western WA the local shires around Albany are funding partners in Timber 2002 Incorporated. This regional farm forestry initiative has the direct involvement of shires, State Government departments, and commercial interests involved in farm forestry who are cooperating in planning infrastructure (roads, rail and ports) and working on standardised approaches to matters such as fire management.
- The Shire of Latrobe in Victoria has an accreditation scheme for harvesting plans on private lands, and has granted plantation forestry an as-of-right use on cleared land, as long as the development adheres to the Victorian code of forest practice.

- The Shire of Cooloola in Queensland provides rate rebates as an incentive for farm forestry establishment in the shire.

2.9.1 Local government's role – a case study

The role of local government became the subject of a more detailed study undertaken in cooperation with a Commonwealth FFP project. This project and Fortech jointly commissioned Angela Munro to undertake a case study of local government authorities' culture and planning policies relating to farm forestry, and to recommend ways of minimising the negative interference and maximising the positive influence of local government.

The Munro (1997) consultancy sought to:

- investigate what role, if any, local government should have in regulating farm forestry;
- determine the conceptual basis for differentiating farm forestry from other landuses;
- identify a model planning approach to regulating (or indeed 'de-regulating') rural landuses, including consideration of how an effects-based planning approach could be introduced;⁶
- identify whether the Tasmanian Private Timber Reserves system could be applied in other States;
- identify the appropriate statewide planning amendments which could be used to bring a consistent approach to statutory planning for farm forestry. Include consideration of the Victorian amendments which make plantations of up to 40 hectares an as-of-right use in rural areas;
- investigate the roles and relationships between local government, catchment committees and the new regional plantations committees in the promotion of new industries based on farm forestry;
- look into the threat of local government changing planning schemes or intervening in other ways to remove the right to harvest commercial farm forests;
- identify other ways in which local government powers may be used to impede farm forestry or discriminate against forestry in favour of other forms of rural production, for example through the imposition of roading levies; and
- identify and document some good examples of where local governments have facilitated farm forestry developments.

These issues were explored through a case study in southern NSW and north-eastern Victoria. Munro (1997) concluded that:

- it is necessary that local government is included in the planning and policy development process;
- there are both historical and practical reasons why many local communities have a bias against plantation forestry as it has been imposed in the past (e.g. State Governments expanding plantations despite local opposition);
- local government can be a champion and facilitator for sensible planning arrangements and industry development; and

⁶ Effects-based planning concerns not simply the activity proposed but the effects of that activity, so for example if plantations were an improvement over grazing they should be allowed. It is one of the principles of New Zealand's Resource Management Act 1992 (Alexandra 1994; NZ Ministry for the Environment 1991)

- there is an urgent need to develop effective links between catchment management and local governments' statutory planning roles so that natural resource management is supported by the local councils' planning functions.

There is an urgent need to introduce practical measures which provide security of investment and minimise regulatory imposition on farm forestry activities, while at the same time maintaining the right of local communities (through their elected local governments) to regulate and plan for significant changes to their region.

With this in mind we make the following suggestion: a system is needed which allows integrated farm forestry to occur as an as-of-right use in rural areas up to a certain scale of operation. After this scale is passed – as determined in a planning scheme and expressed as a percentage of a farm, shire, or catchment – the statutory planning process should be triggered. Such an approach should satisfy the need for communities to maintain a degree of control without unnecessarily limiting individual rights to innovate in the use of land.

A process is required which brings local government organisation and farm forestry organisation together to plan rationally how to overcome the oft-stated problem that statutory planning limits confidence in farm forestry investments. This is a role that local plantation committees could work on in their respective regions.

3. FARM FORESTRY IN CONTEXT – A TEST CASE FOR ESD?

3.1 ESD, the revegetation groundswell and the forest conflict

The context in which farm forestry is emerging in Australia is characterised by:

- increasing commitments to ESD outlined in numerous national and industry strategies;
- ongoing controversy about how our native forests should be managed;
- commercial opportunities resulting from changing consumption patterns and predictions of dramatic shortfalls in the global supply of wood fibre;
- increasing interest in, and recognition of rural revegetation; and
- ongoing reorganisation of government organisations.

Since the late 1980s Australian governments have made numerous commitments to ESD and specific commitments to ecologically based land use and forest management.

These commitments include, for example:

- the National Strategy for Ecologically Sustainable Development; (Commonwealth of Australia 1991a)
- the Decade of Landcare Plan (Commonwealth of Australia 1991b);
- the National Water Quality Strategy (Commonwealth of Australia 1992b); and
- the National Strategy for the Conservation of Biodiversity (Commonwealth of Australia 1994).

Throughout this period there has been controversy about the management of native forests, numerous State and national inquiries including the Resources Assessment Commission's Timber and Forest Inquiry (Commonwealth of Australia, Resource Assessment Commission 1992), the Industry Commission's Inquiry Further Adding Value to Australia's Forest Products (Industry Commission 1993) and several major policy initiatives intended to transform forestry in Australia. These have culminated in the National Forest Policy Statement (Commonwealth of Australia 1992a), the Wood and Paper Industry Strategy (WAPIS) (Commonwealth of Australia 1995) and the ongoing process of determining Comprehensive Regional Agreements (CRAs) on areas available for wood production and areas for reservation in native forest.

The explosive growth of the revegetation movement has occurred concurrently with the intensification of the forest debate and the formal endorsements of ESD. The 1980s and 1990s saw a dramatic rise in interest in revegetation and farm-tree growing as practical ways to improve the landscape. Community enthusiasm for greening is evidenced by hundreds of landcare and farm-tree groups active in tree planting and bushcare projects.

The landcare movement has changed the dynamics of land management policies and practices in Australia and highlighted the enormous challenges of managing land and water resources sustainably (Greening Australia 1992; Campbell 1993; Alexander 1995). A more complex understanding is emerging of the interrelated nature of the social and biophysical processes affecting the landscape.

Appreciation of Australia's unique native flora is also escalating as many people recognise the utility, biological and aesthetic value of native plants. Many people are simply falling in love with native trees and their timbers and planting trees for both love and money. Farm forestry, with its potential to contribute to improved resource management on a farm or landscape scale

and to provide future income, has increasingly become a logical focus for many practical people searching for achievable solutions.

The huge quantities of revegetation proposed to redress land and water degradation could become a substantial future timber resource. Trees planted for timber can assist in redressing land and water degradation. The timber or environmental benefits will depend on planning, management and species selection decisions taken at planting. This is a powerful argument for investing in a well-informed and skilful revegetation industry – one which recognises the environmental and commercial opportunities of farm forestry and is capable of drawing on the substantial technical capacity of the forestry, land management professions and the ecological sciences.

3.2 Farm forestry a test case for ESD?

Farm forestry has the potential to contribute solutions to several contemporary ecological and economic concerns.

In regions where the biophysical conditions are suitable, farm forestry plantings can:

- produce high-value products as an alternative or in addition to native forests;
- provide an opportunity for introducing many more trees into the rural landscape;
- offer a practical and highly visible means of achieving improved land management;
- provide economic benefits: wood production and increased agricultural yields;
- supply significant environmental services (e.g. CO₂ absorption or catchment management benefits);
- contribute to reversing national balance of payment deficits;
- generate employment and perhaps more importantly, a sense of hope and confidence; and
- introduce diversity into agricultural systems in both spatial and temporal scales and through enhancing financial, crop and biological diversity.

With this capacity to address ecological and economic concerns, the endorsement and adoption of farm forestry should be a clear, practical and measurable example of progress towards sustainable development. Despite the apparent potential and the groundswell of enthusiasm and community activity, however, the development of farm forestry in Australia – and of sympathetic policies supporting it – has been problematic.

Achieving the supporting or enabling policy environment in which farm forestry flourishes could be considered a test case for the usefulness of the various national policies on landuse, sustainable industries and sustainable development.

Until recently, however, farm forestry has failed to be the focus of many specific policies and few dedicated and effective support programs (judgment reserved on the Commonwealth FFP). Furthermore, direct support (or lack of it) may be less important than removing a wide range of impediments which have become entrenched through interrelated historical and cultural circumstance. Implementation of an orderly reform agenda is urgently called for.

3.3 National and global trends and their implications for farm forestry

The trends which are likely to have a substantial impact, either individually or collectively, on farm forestry developments in Australia include the following global trends:

- GATT, 'free' trade, increasingly rapid information transfers and the increasing globalisation of the world economy, including the increasing influence of transnational corporations and globally mobile capital. These have implications for the type and scale of investment likely in the Australian forestry sector both in growing and processing of wood products.
- Global population growth, leading to increasing use and scarcity of resources, and consequent pollution, has implications for the capacity of global wood production to satisfy demand.
- The reduced supply of tropical timbers, along with rapid expansion in industrial capacity in South-east Asia and increased demand for wood in the Pacific Rim, has implications for both supply and demand and the search for alternative (non-traditional) sources of raw materials and processed wood products.
- The increasing importance of international treaties, including global treaties on biodiversity, greenhouse and forest management (e.g. the Montreal Protocol [DPIE 1997]) has implications for implementing systems of national and international accountability for the impacts of production systems. It may also swing carbon credits behind farm forestry developments.
- A suite of possible changes resulting from greenhouse-induced climate change (greater severity of storms, more floods, higher average temperatures) has implications for planning and certainty in factors such as siting and growth rates, pests and diseases, and fire risks.
- The increased movement of biologically active material around the world (plants, microbes, insects and so on) increases the likelihood of new pests and diseases.

National trends include:

- Decline in the health and integrity of river and catchment ecosystems (salinity, declining water quality and the increasing intensity and severity of algal blooms) are causing serious concern. The endorsement of ESD policies and sustainability strategies are leading to exploration of farm forestry options to address many resource management issues. The capacity of strategically located or extensive farm forestry to change functional relationships within catchments is being investigated in many catchments.
- The adoption of a 15% target for forest ecosystem reserves through the joint (Commonwealth and State) CRA and the RFA processes has implications for the capacity of State forests to continue to supply processing capacity and the consequent need for regional economic adjustment and employment initiatives.
- The ongoing decline in the number of farmers and the declining relative economic significance of pastoral industries may be leading to lower actual prices for land to be used for farm forestry production.

- Under declining terms of trade for most producers of agricultural commodities, many may start looking for alternative sources of income from their own farm forestry activities or through joint ventures.
- The increasing recognition of the importance of remnant vegetation and increasing attempts to regulate broadacre clearing implies a reduction in the supply of logs generated by converting private forested land to farmland (especially significant in parts of Queensland and Tasmania).
- Increasing consumer, trade and environmental concerns about the sustainability of production processes is leading to the development of forest product certification systems.
- As discussed elsewhere (pages 13, 39), the application of competition policy and principles of competitive neutrality for government trading enterprises has major implications for redefining the relationships between private and public wood-growers and will depend on external scrutiny and accountability of publicly owned wood production agencies.
- Cost-cutting in many rural programs, for example to State Government agricultural extension services, has implications for competition for project funds and information transfer mechanisms.
- Attempts to develop systematic approaches to cost-sharing for on-ground works will require the development of systematic approaches to setting priorities for investments in natural resource management and determining the public goods achieved.

4. THE NATIONAL POLICY CONTEXT

4.1 National forest policies

The NFPS was signed by the Prime Minister and the Premiers in December 1992 (Commonwealth of Australia 1992a). It attempted to create a comprehensive and nationally agreed approach to forestry issues. The goals for plantations (including farm forestry) agreed to within the NFPS were:

- to expand Australia's commercial plantations to provide commercially viable, high-quality wood resources for industry;
- to increase plantings to rehabilitate cleared agricultural land and as a means of improving water quality and meeting other environmental and economic objectives.

Farm forestry and plantations were identified as a way of improving the sustainability of agriculture through salinity control, land protection and shelter, as well as increasing timber stocks, replacing imports and earning export dollars.

Australia has the following factors which should be conducive to farm forestry developments:

- large areas of suitable land – over 18 million hectares are considered suitable, and of this over 5 million hectares are regarded as highly suitable (AACM 1996);
- access to domestic and export markets;
- education, experience and expertise in agriculture and forestry;
- dynamic business, forestry and agricultural sectors; and
- many large-scale land and water degradation problems which require revegetation, to which commercially motivated farm forestry can contribute.

The NFPS, the WAPIS and the resultant process of CRAs leading to the formalisation of RFAs⁷ come after more than 20 years of conflict over forest management in Australia. While most of the conflict has focused on management of native forests, plantation policies and programs have not been without controversy, for example the expansion of government plantations in north-eastern Victoria leading to the Victorian Pine Plantation Impact Inquiry (see Dargavel and Semple 1991).

Between 1975 and 1997 there have been numerous inquiries into forestry, by both State and Commonwealth Governments. One of the most comprehensive was the Resource Assessment Commission's Forest and Timber Inquiry (Commonwealth of Australia, Resource Assessment Commission 1992). Other national inquiries included the National Plantation Advisory Committee (Commonwealth of Australia 1991c); a Working Group on Ecologically Sustainable Development in 1991 (Commonwealth of Australia 1991d), and the Industry Commission's inquiry *Adding Further Value to Australia's Forest Products* (Industry Commission 1993).

The WAPIS was developed by the Commonwealth in 1995 (Commonwealth of Australia 1995). This further committed the Commonwealth to encouraging farm and plantation forestry, while recognising that State and local governments have primary responsibility for forestry and

⁷ In conjunction with each of the relevant states the Commonwealth is undertaking CRAs leading to the formalisation of RFAs. The dual aims of the CRA/RFA process is to establish a national reserve system that comprehensively represents all forest types and provides long term and secure wood supply for industry. The CRAs involve assessing all the forests in a region, including private forests and identify those needed to satisfy the national goal of a reserve system with at least 15 per cent of each of the pre-1750 forest types.

landuse decisions. The Commonwealth made a commitment to removing those impediments to plantation and farm forestry over which it had control. These include taxation treatment of plantations and export controls on plantation-grown timber. In the WAPIS the Commonwealth indicated its willingness to work cooperatively with the community, industry, and other governments to overcome impediments beyond its direct control, such as harvesting rights, codes of practice and planning and landuse controls. Since 1995 some progress has been made, including the removal of export controls and clarification of the taxation treatment of plantations.

The Commonwealth also announced increased funding for the continuation of the FFP in 1996. This program has funded numerous regional projects establishing or continuing regional plantation committees, and several national projects, including projects aimed at:

- improving farm forestry training and education;
- attracting institutional investment to plantation forestry;
- evaluating local government planning policies as they affect farm forestry;
- pioneering methods for statewide technology transfer, growth-rate modelling and species selection, and determining land capability for tree production; and
- a review of silvicultural research relevant to farm forestry.

4.2 National Competition Policy

In addition to the policies directly concerning forestry, numerous other policies also have a major bearing on forestry in general and farm forestry in particular. The National Competition Policy (National Competition Council 1997) has major implications for farm forestry. Implementation of competition policy has been a recurring theme in this project because competition between private growers and governments remains a serious concern for those involved in developing farm forestry.

The National Competition Policy binds all governments to an agreed set of principles and actions intended to ensure that government businesses do not have a competitive advantage over the private sector. The in-principle commitment to competitive neutrality should have a major bearing on the relationship between public and private forestry in Australia. However, as the agreement requires detailed and intimate examination of the ways in which governments operate, it is not possible to deal with all sectors simultaneously. The timetable for adherence to the national competition policy for forestry is 1999, along with the many other lower-priority sectors. But we assume that in the intervening period the senior management of government agencies will move to ensure that their operations adhere to competition principles.

It is at present too early to determine the results of commitments to competitive neutrality in the forestry area. But because of the long history of doubts about anti-competitive practice, log-pricing, and the overall financial performance of most forestry agencies, it is unlikely that private forest growers will believe that the principles have been met until there is an external review by an independent third party.

4.3 Conflict, controversy and the ferment of policy development

Two decades of controversy have drawn increased media attention and public scrutiny to forest management. The forest conflict, like many contemporary environmental and resource management conflicts, results from a clash of differing views of the world. An increasingly diverse community holds different perspectives, values and priorities about how to manage resources. The resulting conflicts are proving protracted, costly and divisive.

As a result of changing community values and the changing relative abundance of natural resources, the late twentieth century should be recognised as a period of marked change. The transition from an era of abundance in natural resources to one of scarcity frames environmental debates. The relative availability of natural resources is declining in the face of the global capacity to consume resources. Supply limits are being reached or breached for many natural resources, prompting wide-ranging changes from the substitution of specific materials to the adoption of general ESD policies.

While governments are adopting ESD policies, there is much confusion about the transition from an 'economic development paradigm' to a 'sustainability paradigm'. In past eras of natural abundance, policies aimed for economic growth by encouraging industries based on the exploitation of resources (Dargavel 1995). Throughout most of this time such exploitation was limited by capital, technology (e.g. transport, processing) and demand.

In cultural and political time-scales, we have recently moved into an era where resource exploitation is becoming limited by scarcity, but the implementation of appropriate policy responses is often limited by institutional inertia and conservatism, as well as by fear of change, losses for vocal vested interests, and limits in capital, technological capacity and knowledge.

The implication of this for farm forestry development is that if governments wish to embrace policies which support ESD generally, and the expansion of farm forestry specifically (through the various policy reforms identified elsewhere in this report), they must be willing to manage the transition process. Some aspects of doing so may include overriding ingrained institutional cultures and vested interests which benefit from the current situation.

Apart from the wood-using industries, those with the greatest investment in the status quo may be the forestry profession, and the State Government agencies responsible for forestry. These agencies not only provide most of the advice to governments on forestry policy, but also execute forest policy and manage sizeable forest-growing enterprises. There are, therefore, potential conflicts of interest exacerbated by 'institutional capture'. Institutional capture results from the long and well-established relationship between an industry and its regulators. There are striking similarities between the 'capture' of both forest and irrigation water management agencies in Australia. In the latter, institutional capture is demonstrated by the massive government subsidies over decades to the irrigation industries (see Johnson and Rix 1993; Industry Commission 1992).

Similarly, the close association between the processing industry and the State growers and forest management agencies is established to such an extent that it could be described as mutually co-dependent (Alexandra and Fisher 1996). While several States are moving or have moved to corporatise their plantation and forest management agencies, thus separating them from the agency directly responsible for forest policy, for the purposes of this analysis the formal separations are less important than the cultural connections.

The growth of a potentially vocal, independent group of growers who regard the States as one of their competitors has the potential to change the political dynamics of the sector. The emergence of organised, independent growers combined with increased public sector scrutiny in the era of competition policy could be instrumental in bringing about major changes which support farm forestry development.

5. DOING IT TOUGH – FROM POLICY TO PRACTICE

5.1. Policy factors slowing farm forestry development

Despite formal endorsement of farm forestry in various national policies, e.g. NFPS and WAPIS, the following significant factors are contributing to the slow rate of reforms intended to support farm forestry development:

- **Conflict over forests.** Forestry policy in Australia has been dominated by ongoing and often unresolved conflict about management of native forests.
- **Narrowly defined plantations policy.** Farm forestry is often seen as a subset of plantations policy. The terms are increasingly being used interchangeably, which tends to obscure or confuse the issues since industrial-type plantations remain the domain of large corporations or government agencies. The focus of plantation management has mainly been on industrial monocultures dedicated to achieving efficiencies, economies of scale and provision of feedstock for manufacturing industries. The net effect of plantations policy and the associated investments has been to encourage limited forms of industrial forestry close to export facilities and major processors.
- **Conceptual rift between production and environment.** Both at a portfolio and program level there remains a conceptual rift between production and environmental values. Landcare programs have traditionally had an agricultural perspective, while most revegetation programs have had an environmental focus. There continues to be a conceptual rift between revegetation for environmental reasons and farm forestry aimed at integrating production and environmental goals. This remains counterproductive. While there has been a bewildering array of State and federal programs to encourage improved land, water and vegetation management, few have specifically focused on integrated, productive systems like farm forestry.
- **Deeply ingrained cultural resistance** from institutions and professionals alike in the fields of agriculture and forestry (Kanowski 1996; Hocking 1996). This is present to such an extent that few professionals – there are notable exceptions – seem to have taken up the enormous challenges of revegetation and farm forestry with the relish these deserve.
- **Commercial and bureaucratic vested interests** that have reluctantly accepted the need for change, slowed the adoption of proclaimed policies, and attempted to ensure the preservation of the status quo.
- Australian forest agencies, with their **centralist planning and ‘socialist traditions’**,⁸ persevere with a command-and-control approach to log-pricing and allocations, and maintain some of the highest national rates of public plantation ownership in the world (Meynick 1996).⁹

⁸ Central or government planning of economic activity and state ownership of productive enterprises are characteristics of socialist economies. It is therefore appropriate to refer to the dominance of state ownership of plantations in this way.

⁹Australia ranks fourth, behind China, Vietnam and Venezuela.

- **Absence of a ‘market for environmental services’.** Markets for environmental services are non-existent or minimal. Landuse policies tolerate many landuse activities which have high negative externalities, while there are few direct incentives for undertaking activities which generate positive externalities, eg. improving catchment health, mitigating salinity, absorbing CO₂ etc.

The net effect of the above is that:

- many commercial farm forestry opportunities are being ignored or are developing more slowly than necessary;
- enormous land management challenges are not being met on the scale required; and
- public investments intended to accelerate more sustainable landuse are not being used as effectively as possible. This may ultimately jeopardise public funding of these programs because the delivery of intended public benefit fails to eventuate or public-good outcomes are reduced.

Historically, farm forestry has not been well recognised within forestry, agricultural or industry development portfolios, policies or support programs. Even without formal or effective support, many people have actively pursued farm forestry, and enthusiasm for it has continued to grow.

The increasing status of farm forestry and the increases in Commonwealth funding have brought with them the threat that funds will be diverted from where they may be most effective by State agencies. The syphoning off of program funds in order to maintain activities and employment within State agencies is a widely recognised problem. According to one State Government official, the Commonwealth FFP has had the effect of ‘legitimising the bastard son of landcare’;¹⁰ he added that there is nothing like the prospect of Commonwealth money to give a subject legitimacy within the State departments.

Deep suspicion of government agencies, with serious doubts about their effectiveness, was a common theme expressed by farm foresters throughout the consultation process.

Clarifying the roles of government is widely called for in order to ensure that policy goals are explicit and articulated, and that use of program funds is subjected to ongoing scrutiny.

5.2. Clarify the roles of government

Clarifying the roles of government in relation to farm forestry is extremely important, and any government involvement must be based on explicit policy principles. Identification of the most useful roles for governments is therefore crucial.

Positive roles for government identified and supported in the consultation process include:

- sponsoring strategic and applied R&D;
- assisting industry during the initiation and development stages but withdrawing when private enterprise is ready to take on the commercial and further development roles;
- acting as facilitators and investors in innovation processes;

¹⁰ Initially farm forestry projects were not often recognised as a legitimate landcare activity and therefore struggled to gain funding from landcare programs. Once the FFP arrived this had the effect of legitimising farm forestry.

- formulating and participating in cost-sharing arrangements based on a fair split between public and private benefits;
- reforming government native forest and plantation management to ensure that these do not compete unfairly with private growers; and
- sponsoring increased intergovernmental cooperation and self-reliance within the industry.

There is little support among private growers for governments continuing their role as the major plantation investors and operators in their own right. Governments' motives for involvement in joint-venture plantation schemes were also frequently questioned. Many growers doubt that State forest services can be unbiased extension services and/or joint-venture partners while at the same time being the principal competitors in markets for forest products and land for plantation expansion.

In recent years the focus of the States' plantation expansion has shifted from direct investment by governments on Crown land to reforestation of land purchased, leases or joint-venture arrangements. This has given rise to fears that forest agencies have changed the focus of their expansion plans, but that a fundamental shift towards forestry based on sound investment decisions has not yet occurred.

Clarifying the policy principles which define government involvement and support for plantation and farm forestry is important in order to maximise the beneficial relationships between public and private sector activity. Care is needed to ensure that direct public sector involvement in commercial forestry does not hinder or suppress activity or investments which would otherwise occur through the private sector.

Farm forestry may benefit substantially from attempts to introduce markets for environmental services and reforms to internationalise Australia's forestry sector. The latter issues are described briefly in the next section.

5.3 An international focus for Australian forestry?

Australian forest production could be in a good position to take advantage of significant opportunities resulting from projected increases in demand and decrease in available supply (Cameron 1996, 1997; Johnson 1997). These opportunities have already been recognised and acted on by governments and private investors in countries such as New Zealand, Chile and China.

Australian forestry organisations, such the Forests and Forest Products Industry Council, have produced over-optimistic growth forecasts in the past (Cameron 1997; Cameron and Penna 1988). Recent forecasts consistently predict an era of international opportunities. Taking advantage of these opportunities will require an increasingly international focus dispensing with the import substitution policies of the 1950 and 1960s.

Failure by governments to take the hard decisions necessary to achieve a diverse, export-oriented industry would be unfortunate given the opportunities emerging in the next millennium. Securing fair conditions for all prospective growers, whether they be individual farmers, investors, corporate processors or international superannuation funds, will be necessary if we are to be able to take advantage of these opportunities.

For a number of reasons, including the dominance of State ownership of plantations, Australia may not be in a good position to achieve this outward focus without some major reforms that may prove painful to some interests. Evan (1990) describes the pain and confusion associated with the reforms in New Zealand.

Given the long and powerful histories of government involvement in the timber industry in Australia, it may be difficult to wean both the industry and the professionals off the expectation that it is government's role to reliably provide cheap and abundant raw material to domestic or international processors (see Dargavel 1995 for a highly readable account of the history of Australian forestry).

Despite the oft-heard rhetoric about forestry being market-driven, it is worth pointing out that of the 13 major plantation-growing countries compared in an international benchmark study, Australia has the fourth highest public ownership of plantations (Meynick 1996). The countries with higher public ownership – China, Venezuela and Vietnam – have had even stronger socialist or communist traditions.

This strong public ownership demonstrates the success of the centralist or 'socialist' tradition within the Australian forestry sector that has its origins in government management of native forests as a public resource. The dominance of public ownership may impede internationalisation by hindering rapid movement to a market-driven or investment-based sector. To overcome this, governments should give high priority to introducing conditions which suit investors (both small and large), landowners and farmer-foresters.

Plans to triple the plantation area, as in DPIE's '2020 Vision' (DPIE 1997b), continue in the tradition of strong central government planning for the industry, but without other reforms may do little to inspire commercial confidence. Imagine if other industry sectors (fisheries, mining, cropping, manufacturing and so on) had their expansion plans developed and endorsed by government. Nominal targets are less important than ensuring that growth in the sector can be driven by sound landuse and investment decisions.

5.4 A new plantation paradigm

Integrated farm forestry is substantially different from industrial plantations and therefore requires a different approach if the nation is to realise the opportunities available. A new paradigm is required as it is simply inappropriate to attempt to transfer the existing plantation paradigm and expect it to work in farm forestry.

Industrial plantation monocultures have traditionally been established for the legitimate goal of maximising wood fibre production for industrial use. Both plantation forestry and the first forestry academy in Europe had their origins in the need to satisfy the emerging industrial users at a time when traditional native and farm forests sources were unable to satisfy demand (Harris et al. 1996).

While it is possible to conceive of farm forestry as a kind of subset of plantation forestry, with many similarities, the differences are still substantial. Farm forestry advocates often share a

similar philosophy with the new forestry or ‘ProSilva’¹¹ movements. These movements are looking for an ecological and human-centred approach to integrating environmental, economic and social needs in forest management (Harris et al. 1996).

There is a tendency to lump all plantations into the farm forestry category, thus blurring definitions and increasing the potential for confusion. Detailed definitions of plantation ‘types’ are required, not for pedantic reasons but because by accurately recognising the differences, policies and programs can be targeted accurately (in Section 6 we attempt to define types of plantation and farm forestry). It is important for both government and industry bodies to recognise these differences in clear and well-articulated ways.

There are significant biophysical, infrastructural and economic circumstances that limit the expansion of industrial-style plantations in Australia, even when undertaken in conjunction with farmers. Furthermore, it would be negligent for industry or government to promote industrial-style plantations in inappropriate regions. Examination of those regions with sizeable industrial plantations or with commercial potential clearly demonstrate these limits. Put simply, industrial-style plantations will be limited to regions with suitable land, at affordable prices close to export facilities or major processing plants. In these areas the continued expansion of boundary-to-boundary or joint-venture plantations is – and should be – market-driven. Without the sorts of clear definitions proposed, however, these ventures may soak up incentives or program support intended for a more dispersed effort. Clearly, further work is required to establish the policy principles that will enable clear distinctions to be drawn between public-good and private aspects of farm forestry developments.

Industrial monoculture plantations are an increasingly significant part of Australian forestry. These plantations should be considered a legitimate land use but one which is nonetheless in competition with agriculture for the available land and capital. The outcomes of this competition are best determined by market forces and there is little justification for incentives or further government investment in broad-acre plantations of the proven industrial species (either outright or as joint ventures). After decades of direct government involvement there is enough evidence of where and how to make this type of plantation work. In the selected regions it is inevitable that this kind of plantation will become an increasingly important component of both rural landscapes and regional economies so long as prices for alternative commodities (e.g. beef, wool) offer lower returns than farm plantations. While there is little justification for direct or indirect government investment, governments can still do much to facilitate and plan for the expansion of industrial-style plantations (Centre for International Economics 1997).

Nevertheless it is admittedly very difficult to restrict definitional boundaries. The potential for overlaps within the defined sectors are enormous and should be seen as a scale with industrial plantations at one end and environmental plantings at the other. Farm forestry activity tends to be spread along the entire scale.

Industrial plantations <--> Farm forestry <--> Environmental plantings

¹¹ ProSilva is a forestry philosophy and management system developed in Europe. It is gaining advocates around the world because it considers the long term ethical, economic and ecological consequences of forest management decisions. Rather than shunning native forest harvesting as unethical or environmental vandalism it looks to use the most ethical, environmentally friendly and economically sound approaches to forest management.

Industrial plantations, integrated farm forestry and native forests (both public and privately owned) often coexist within particular regions, with important synergies and linkages. Industrial plantations can contribute to farm forestry development through, for example, farmers entering joint ventures with industrial operators, thereby dispersing industrial-style plantations across many farms.

5.5 Planning to maximise the benefits from farm forestry

Both in the preferred plantation regions, and over much of the high and medium-rainfall zones further from ports or traditional forestry areas, there are large areas where farm-based or integrated farm forestry could flourish as a complementary activity to agriculture. It is by dispersing farm forestry efforts through these extensive areas that farm forestry could play an important part in restoring greater tree cover and improving land and water resources (Alexandra 1989, 1991; Schofield et al. 1989; Walker et al. 1989). Figures of 10% to 20% of catchments or individual farms are frequently quoted as optimal, but individual farm assessments based on enterprise, owner's goals and landscape factors all need to be considered (AACM International 1996).

With appropriate planning, industrial plantations can also be sited to address excess waterlogging, salinisation or improve water quality. Alternatively, maximisation of wood production or profits may be the principal reason for site selection. Therefore, from a public policy point of view, the important question is how should incentives or cost-sharing arrangements be determined given the range of public and private interests involved and the complexity of determining them? This reinforces the need to define incentive programs clearly so that they can be properly targeted and not open to rorting.

Improved management of water resources and the solution of water-related problems like salinisation and erosion are powerful reasons for providing incentives to locate plantations on selected sites where they generate environmental gains.

The capacity of plantations to use water is a valuable characteristic in managing rising water tables and associated waterlogging and salinity (Schofield et al. 1989; Alexandra 1992). This characteristic should be used strategically in the planning of plantations to maximise their multiple benefits.

Plantations' capacity to reduce stream flows or lower groundwater has been widely recognised overseas. In India and South-east Asia, rural communities have protested at wells drying up, and in South Africa plantings of Eucalypts require permits because of their impact on river flows (NPAC 1991).

Farm forestry competes with traditional forestry in markets for wood products, but the environmental effects (externalities) of native forestry activities are not being fully accounted for. One such externality which may represent a significant environmental subsidy to native forest harvesting is the effect of catchments on water yield.

The impact of native forest harvesting on water resources is pronounced in Australia because of the concentration of forestry activities in the higher-rainfall or water production zone of catchments. Logging some forest types has dramatic consequences for catchment yield and

water quality: shorter rotations reduce stream flow, while older forests significantly increase water yield, with substantial economic consequences (Read et al. 1992).

5.6 Assessing benefits – competition or complementary plantings?

Work undertaken for the National Plantation Advisory Committee (NPAC) identified large areas suitable for plantations, both in terms of their timber production potential and the cost of competing for land because of its agricultural production potential (Booth and Janovic 1991). In the past, however, investments in plantation forestry have been mainly focused in locations where high growth rates could be achieved, concentrating activity in selected higher-rainfall areas. There have also been persistent claims that forestry is not a viable landuse below certain rainfall limits. While of course there are limits in absolute terms to where trees will grow, it is clear that trees grow and forest products are harvested throughout vast areas of the country which lie below these proclaimed limits (e.g. the redgum and box-ironbark forests of northern Victoria).

When forestry options are considered like other agricultural crops, the questions for economic assessments are not based on maximising wood production alone, but include question like:

- what are the returns compared to other landuse options?
- are there complementary benefits, e.g. shelter of crops and livestock or land and water protection? how can these be maximised?
- what will the timber and other returns be relative to investments in land and other costs?
- will there be any agricultural production forgone?

When assessing the total net benefits of farm forestry in this way it becomes clear that the locations suitable for commercial farm forestry are extensive: there is vast potential for biological production from farm forestry in many regions of Australia. This biological potential is often combined with increasing community interest in farm forestry and land and water rehabilitation.

Achieving farm forestry's potential multiple benefits at a regional scale depends on good planning and design. Sound planning in turn depends on knowing how the biophysical systems function and understanding the options for achieving forestry production and improved management of natural resources. Bringing together the multiple players within a region in a way that can achieve synergistic or symbiotic benefits is one of the main challenges facing farm forestry development.

The Queensland Community Rainforest Program is one example of a regional program that has attempted to do this. In doing so it identified many important technical, organisational and policy issues that need resolution (see Creighton and Sexton 1996).

To achieve the changes required to the landscape and to grow future timber resources, forestry must move beyond its existing limits, both physically and conceptually, and regional or catchment planning must embrace farm forestry opportunities.

6. TYPES OF FARM OR PLANTATION FORESTRY AND ASSOCIATED POLICY IMPLICATIONS

6.1 Defining the categories of farm forestry

Many commentators predict a strong future for Australia's plantation industries because of:

- an abundance of land;
- predictions of global undersupply of wood fibre; and
- the emerging enthusiasm for farm forestry.

These factors alone will not drive extraordinary growth and profitability in the plantation sector, nor will they necessarily translate into growth in farm forestry. Other factors are important determinants, including profitability of other commodities, taxation regimes, other costs including wages and interest rates, transport infrastructure and long-term confidence in political and economic processes.

Current commercial farm forestry plantings can be categorised in the following ways:

1. Large-scale industrial plantations. These are generally pulpwood with some dedicated for export, but may include sawlogs from a final crop.
2. Government-funded plantation expansions or joint ventures (generally pulpwood but includes sawlogs from final crop).
3. Investment plantings with taxation advantage (generally pulpwood but may include sawlogs from final crop).
4. Experimental, grant and demonstration plantings, and environmental management plantings (these can result in forestry production unintentionally).
5. Diagnosis and design plantings (after Reid 1996).
6. Specialist crop trees – clear wood and cabinet timbers.

A brief description is given below, and an initial attempt at outlining the policy implications of each category.

6.2 Large-scale tree farms – industrial plantations

At present there is expansion of industrial plantations in many parts of Australia. These are the commercially driven industrial plantations which are often planted, owned and managed by the wood-using industries (domestic and overseas), or financed by them and grown on contract by governments and/or management companies.

These plantations are financed in a number of ways from international or government joint venture, listed or prospectus companies, through to owner-manager financing. They are usually

monoculture, boundary-to-boundary or fence-to-fence plantations, grown in this way to achieve necessary economies of scale.

Plantations of this kind will become increasingly important in satisfying predicted shortfalls in industrial wood fibre. Their production should be seen as little different from other industrial commodities (wool, wheat, beef, cotton) except that the treecrop may have some fundamentally different characteristics such as a higher water use or longer rotation times.

Siting, silvicultural regimes and management are generally based on production and transport efficiencies. Preferred locations are determined by a combination of factors such as access to export-handling facilities (ports) or large-scale manufacturing plants, suitable climate and soils, and available land at prices acceptable to the investors. The main considerations in siting these plantations are return on capital, either purely from plantation production or from the combined results of growing, transport and processing when undertaken as part of a vertically integrated operation.

This type of plantation is likely to continue to expand as global capital and wood-using industries move to secure future supplies against predictions of increased competition and global (or Pacific Rim) shortfalls in industrial wood. They will, however, be limited to preferred locations, and in many ways will be a competitor with agriculture for land in those regions. They offer an alternative to traditional agricultural commodity production and provide employment and investment stimulus in the certain regions. Some also provide opportunities for joint ventures or lease arrangements for landholders who wish to receive annuities and/or profit share.

It is to be expected that once the anticipated profits from these plantations reach a critical level they become attractive to outside investors. In the Albany region of WA, competition for available land entering the market has become intense and has driven up the price of suitable land because of interest in plantation investments aimed at satisfying predicted or contracted export markets. The higher cost of land in the region has led investors to look at other suitable regions including south-western Victoria (Julia Leveson, pers. comm.).

Experience in the Albany region suggests that farmers establishing plantations must operate on a scale capable of competing with large plantations and/or aim to get benefits from the complementary nature of the plantations in relation to their farming enterprises (e.g. shelter, salinity control). To achieve the latter, they must design their planting to achieve a range of complementary land management and production benefits. In other words the benefits from integrated farm forestry plantations must accrue to the landholders from designs that maximise the positive interrelationship with other landuse activities. If farm foresters cannot develop such strategies they should:

- consider planting treecrops aimed at niche markets;
- add value through more intensive management or on-site value-adding;
- plant on a scale aimed at competing with industrial scales of efficiency; or
- expect to suffer both sale price and efficiency disadvantages if they cannot offer industrial-scale harvesting and marketing arrangements.

Increasing numbers of regions and State Governments are recognising the opportunities presented by plantations of this kind, and actual investments or proposals are increasing. It can be assumed that such expansion is not limited to Australia and that competition for market share among future suppliers will be intense because of increasing international and interregional

competition. Once numerous plantations come into production it is conceivable that regional suppliers will be played off against one another.

Pulpwood plantations are expanding rapidly in:

- south-western WA around the ports of Albany and Bunbury;
- the greater Green Triangle (south-eastern SA and south-western Victoria) around Portland;
- in Victoria around the port of Geelong;
- in Tasmania using the existing woodchip export ports; and
- around several locations in NSW and Queensland.

Consistent with wider industry policy, industrial plantations should proceed on the basis of sound investment decisions. Given this, explicit policy implications arise from this kind of expansion, which governments need to address. These include:

- coordinated planning for infrastructure requirements;
- community education and careful management of the potential backlash or anti-plantation sentiments, as per the Victorian Plantation Impact Inquiry, with particular emphasis on both physical and social infrastructure like roads and schools;
- adoption of clear policy principles which are used to inform decisions on public sector involvement. For example, any direct public sector investment in expanding industrial plantations should pass a public benefit test, and not operate in competition with private sector capacity to undertake the same function;
- clearly designed processes which facilitate private sector investment;
- creation of a mood of public confidence in plantation investments through strict enforcement of regulatory regimes designed to uphold professional forestry and investment standards and ensure vigilance by increased scrutiny of investment schemes;
- consideration of education or incentive programs with the capacity to direct planting to locations which optimise social benefits, possibly through direct incentive packages or cost-sharing arrangements;
- identifying and providing incentives to locate plantings in ways which achieve specific outcomes for catchment management, water resource or salinity management (incentives should be structured to pay for results);
- industry policies which provide enough certainty to the sector – primary (growing) and secondary (processing) components – so that processing (or export) capacity can match plantation production;
- avoidance of unnecessary industry support packages, preferential planning arrangements, or tendencies toward grandiose and politicised plantation expansion statements.

6.3 Government-funded plantation expansions or joint ventures

In several States, governments are directly funding expanded plantations, or sponsoring their expansion through joint-venture initiatives. In the case of the latter, the State and the landholders jointly invest in plantations within designated regions with requirements for minimum areas, agreements on responsibilities, risks and profit share.

Expansion of government-owned plantations or government investments in joint ventures increases plantation production in the absence of, or as a substitute for, direct investment by capital markets or wood-using industries. Governments continue to invest in plantation production in order to attract or support industry in what seems to be a kind of plantation ‘cargo cult’.¹² This is unlike any other industrial commodity.

Governments should desist from further expansion of this kind without clear justification of why industry or the ‘markets’ cannot do so for themselves. Governments must decide if their role in forestry is to be a major grower within Australia and a minor grower on the world scene, or whether they should establish the conditions in which landholders, investment or forestry companies collectively can be significant producers within the State or nation. Even with the best of intentions and the most rigorous practice in terms of competitive neutrality, it seems unlikely that the States can be both plantation growers and plantation regulators.

If government joint ventures are intended as demonstrations and trials in order to pioneer new forms of commercial forestry in regions without strong precedents of successful plantations, then they should be designed with this outcome in mind. Government should consider whether further trials and demonstrations are needed and whether this is the best way to produce a plantation culture within a region. As stated elsewhere in the report, serious evaluation of previous trials is needed and results extrapolated and communicated.

There are important roles for government other than being directly involved in growing plantations. For example, government-funded R&D could continue to sponsor efforts to advance the conversion technology (e.g. sawing) and to test plantation-grown logs for wood quality and characteristics. The results of this kind of work can have substantial benefits to the entire farm forestry and plantation industry and can stimulate confidence in plantation production.

In northern NSW the government-funded plantations, including joint ventures, are being established in a region embroiled in heated controversy over public forest management. Options for improving management of private native forests, however, are under-resourced. The private native forests represent a sizeable area and component of the region’s forest production. While the government budget for plantations is large, the net effect in terms of the areas of land converted to plantations will be a small percentage of the land area suitable or that already under private native forests or regrowth.

Programs aimed at improved management of private native forests and regrowth are urgently required, but there is a strong perception that because native forest issues are controversial, State and Commonwealth programs have focused on tree-planting to the exclusion of tree/forest management.

¹² Cargo cults are the cults which developed on the Pacific islands when traditional islanders first encountered aeroplanes. Many built mock landing strips in the hope that the “cargo” of western goods would arrive.

A strict focus on plantation forestry tends to obscure other possibilities for wood production such as improved management of private regrowth forests. In northern NSW and similar regions it is necessary to adopt holistic approaches to management of trees within a landscape. Governments need an accurate analysis of the options before investing in any particular approach.

6.4 Tax-driven or investment plantings

Several companies offer tax-effective investments in plantation forestry. Investors gain tax benefits in the first year from investing in plantings aimed at generating future income. Management companies usually undertake the establishment and subsequent management. According to one comparison of available investment options, in which cost of wood production, unit area and yield estimates were standardised (TimberCorp 1996), the costs over the life of the rotation ranged from \$6000 to \$30 550 per hectare and the predicted yields ranged from 300 cubic metres to 137.5 cubic metres on a ten-year rotation. Production costs per cubic metre of wood ranged from \$20 to \$241.53.

These costs should be compared with costs and expectations from industrial forestry companies and the cost structures of small-scale growers. It may also be useful for an annual bulletin of plantation establishment and maintenance costs to be published. While governments could take on this role it may be better undertaken by the AFG and included in their journal.

6.5 Experimental and grant-driven demonstration and landcare plantings

Experimental and grant-driven demonstration and landcare plantings include many tree-planting efforts focused on environmental outcomes but which may yield future timber. There is also considerable experimentation with rainforest regeneration and natural regeneration techniques which may yield future timber.

Given the time it takes trees to mature, we cannot afford to have a generation of *ad hoc* experimentation. Using contemporary knowledge to predict likely outcomes will be paramount. A best bet or an informed-guess approach to predicting outcomes will enable plantings to proceed within the real-world constraints of imperfect knowledge. Bringing together those who know and those who need to know will be crucial in establishing the numerous best bets.

At present there seems to be insufficient cross-fertilisation between the skilled forestry or ecology professionals and those involved in many of the revegetation efforts.

Governments could accelerate effective revegetation and farm forestry efforts by focusing on applied training and professional development skills. This may be particularly relevant in the face of massive new expenditure through the National Vegetation Initiative.

6.6 Integrated farm forestry, 'diagnosis and design' plantings, and specialist crop trees

‘Diagnosis and design’ planning of agroforestry is based on an informed approach to achieving the complementary benefits of combining agriculture and forestry on one piece of land or within a catchment (Reid 1996).

The application of diagnosis and design to farm or catchment planning remains an elusive ideal. Incorporating farm forestry into farm development planning requires a good understanding of integrating forestry and agricultural systems in both space and time.

Planning and planting options will vary greatly, since there are many agricultural and silvicultural systems, species choices, and differing farm and land management objectives. Therefore the potential patterns and possible combinations are numerous. Given the long life of the trees, the implications of not understanding the farm and land management impacts are serious.

Improving the design skills of farmers and farm foresters (or their advisers), so that farm forestry options can be incorporated into whole-farm planning and catchment planning, will be an important component of any national efforts to accelerate the adoption of farm forestry (Reid 1996).

There is also a strong component of the farm forestry movement that focuses on establishing high-value specialist timber trees. This is particularly strong in the rainforest regions of northern NSW and Queensland. There is also much interest in production of specialist timbers in both wetter and drier temperate regions (see e.g. Bird et al. 1996).

This innovation and experimentation by private sector entrepreneurs may form the basis of substantial future industries, and governments would be well advised to consider adopting an ‘industry incubator’ policy (see page 14) in an attempt to accelerate what may otherwise be a slow process.

The interest in high-value specialist timber production appears far greater than its official support, and many private sector enthusiasts are actively exploring the options, pioneering the methods and undertaking education and extension. Organisations like the Subtropical Farm Forestry Association or the Mary Valley Farm Forestry Co-operative are effective at these networking roles. Their efforts could be considerably improved if they received greater support, but both government and industry focus primarily on species suitable for mass production (mainly eucalypts and pines) and have ignored specialist timber production.

7. SUMMARY OF THE IMPEDIMENTS

Table 1

Ranking of farm forestry impediments – based on analysis of workshops and interviews*

Impediment	Vic.	SA	NSW	Qld	Tas.	WA Albany	WA Esperance
1. Farm culture	medium	medium	high	high	medium	medium	medium
2. Professional culture	low/med	medium	high	low/medium	low	low	low
3. State agencies	medium	low/med	high	medium	low/med	medium	medium
4. Knowledge/ information systems	med/high	medium	medium	high	low	medium	medium
5. R&D arrangements	N/A	low	medium	medium	medium	medium	medium
6. Conflicting roles of government	medium	medium	high	medium	high	medium	medium
7. Distorted log markets	high	high	high	high	high	high	na
8. Taxation	high	medium	high	medium	medium	medium	medium
9. Legislated tree-tenure	high	high	high	high	low	high	high
10. Scams and poor investment record	high	high	high	high	high	high	low
11. Landuse controls and codes	high	high	high	high	low	medium	low
12. Inefficient transport infrastructure	low/med	med	low	low	medium	high	low
13. Transparent pricing	high	high	high	high	high	high	high
15. Safety and efficiency of harvesting operations	high	medium	medium	medium	medium	medium	medium
Impediment	Vic.	SA	NSW	Qld	Tas.	WA Albany	WA Esperance
16. Regional wood-flow planning	high	med/high	medium	medium	medium	medium	medium
17. Overcoming long-term marketing risks	low	low	low	low	low	low	high

18. Processors' changing plans	medium	medium	medium	low/med	medium	medium	medium
19. Lack of markets for environmental services	high	high	medium	high	high	high	high
20. Facilitating external investment	high	high	high	high	high	medium	high
21. Insurance	low	low	low	low	low	low	low
22. Confusion and conflict over forest policy	low	low	high	low	high	low	low
Other Impediments							
23. Defined right to harvest		med	high	high			medium
24. Lack of policy supporting private native forests	low	N/A	high	high	high	low	N/A

KEY TO TABLE 1

High: identified as a major impediment requiring policy reforms to overcome

Medium: identified as an important impediment

Low: recognised as an impediment but one with lower priority

** Note:* The table reflects the views of the people involved in the consultation process (see Appendix 3). However, as there was no attempt to reach consensus at the workshops, a range of views were expressed and some may have been at variance with those reported here. These rankings are therefore attributed to the authors and do not pretend to be the views of all those attending the workshops.

It is worth noting that poorly regulated investment forestry, confusion resulting from landuse controls and the need for tree-tenure legislation ranked highly in most locations. Tasmania was the exception on landuse controls and codes of practice, indicating the success of the Tasmanian Private Forest Reserve System.

Many of the workshop participants suggested that all the solutions nominated in the discussion paper should be implemented.

Table 2. Summary of major responsibility for overcoming impediments

Note: More asterisks = more responsibility.

Impediment	regional committees/ coops	R&D and education sector	State Govt	Cwlth	Industry
1. Farm culture	***	**	**		**
2. Professional culture	*	***	*	*	**
3. State agencies	*	*	***	**	
4. Knowledge/ information systems	*	***	***	**	**
5. R&D arrangements	*	****	***	***	*
6. Conflicting roles of government	**	***	****	****	
7. Distorted log markets	**		****	**	**
8. Taxation				****	**
9. Legislated tree-tenure	*		****	*	*
10. Scams and poor investment record			***	****	***
11. Landuse controls and codes	***		****	**	
12. Access to efficient transport infrastructure	*		****	**	*
13. Transparent pricing	**		****	**	**
15. Safety and efficiency of harvesting operations	**	**	**	**	****
16. Regional wood-flow planning	***		***		**
17. Overcoming long-term marketing risks	**				***
18. Risk-sharing – processors changing plan	*				***
Impediment	regional committees/ coops	R&D and education sector	State Govt	Cwlth	Industry
19. Lack of markets for environmental services	***	**	****	****	

20. Facilitating external investment	<u>**</u>		<u>****</u>	<u>**</u>	<u>***</u>
21. Insurance	<u>**</u>				<u>**</u>
22. Confusion and conflict over forest policy Other impediments	<u>**</u>		<u>****</u>	<u>***</u>	
23. Defined right to harvest	<u>*</u>		<u>***</u>		
24. Lack of policy and programs supporting private native forests	<u>**</u>	<u>**</u>	<u>***</u>		

KEY TO TABLE 2

**** organisation identified as having the principal responsibility for change.

*** organisation identified with a major responsibility for implementing solutions

** identified as requiring direct involvement and some effort in overcoming impediment

* recognised as needing to be involved in processes required to overcome impediment.

8. RESPONSES AND ANALYSIS OF THE IMPEDIMENTS IDENTIFIED IN THE DISCUSSION PAPER

In this section each of the specific impediments documented in the discussion paper are analysed and results of the consultation reported. Material from the discussion paper is presented in the indented text.

Impediments 1 to 4 deal with cultural issues, impediments 5 to 14 deal with public policy issues, and impediments 15 to 20 address market issues.

CULTURAL IMPEDIMENTS

THE LACK OF A FARM FORESTRY CULTURE – AN INTRODUCTION

Australia's lack of a farm forestry culture is a major impediment. The culture is the sum total of the knowledge, beliefs, experience and skills throughout the community. We believe a farm forestry culture is missing throughout most farming communities, the forest industries, agricultural and forestry professional and relevant State agencies.

The question of 'what drives what?' is valid – is the lack of skills and culture a result of distorted markets?

The lack of visible markets for farm forestry products and the rarity of existing farm forestry operations demonstrating commercial returns not only impedes the development of skills and 'culture' but also allows people to draw conclusions about the uneconomic nature of farm forestry.

The lack of skills and experience impedes farm forestry adoption where opportunities do exist. (The market issues are addressed later in this paper.)

The lack of successful farm foresters ensures that the industry has few success stories and even fewer practitioner advocates. Many people see the desirability of farm forestry and find it appealing but upon recognising the market distortions and on seeing the economic analysis choose to invest elsewhere.

In this report we choose to look at farm forestry potential from base principles – we ask why the culture or markets are as they are.

8.1. Impediment 1. Lack of a farm forestry culture: farmers

The following indicate the lack of a farm forestry culture:

1. 'Tree-growing' has traditionally been seen as a competitor to 'agriculture' and not as complementary.
2. Commercial tree-growing has largely been the domain of governments and corporations.
3. Lack of general information on profitability, compatibility and options for farm forestry systems.
4. Perceptions of more complex management requirements and new skills required, including changing planning horizons due to the long-term nature of forestry investments.
5. Lack of appropriate silvicultural, landscape design and farm planning skills, especially in the use of plantation trees in combination with agricultural systems.

Solutions: Policies which support development of a farm forestry culture

Governments, industry and rural training councils adopt a cohesive training and education policy to enhance farm forestry skills development. A farm forestry education and training policy should explore the use of the most effective and innovative approaches to accelerate the development of a farm forestry culture, by, for example, undertaking the following:

(a) Seeking out and supporting the innovative examples (demonstration sites) and exponents (people) of farm forestry in Australia to demonstrate the benefits of tree-growing. Financial support for demonstration farms, field days etc.

(b) Sponsoring exchange programs which encourage interregional and international exchange, e.g. scholarships or subsidised farmer or farm forester visits.

(c) Supporting formal and informal training programs to overcome lack of appropriate silvicultural and landscape design skills, e.g. through TAFE, agricultural colleges, university and postgraduate courses, such as the Melbourne University Short Course on Farm Forestry which targeted agricultural and forestry professionals.

(d) Adopting innovative training and extension methods which help in establishing links between professionals, practitioners and those considering adoption. In the USA, the Master Treefarmers Program takes tree farmers through 27 hours of intensive training at no monetary cost to the trainee. The investment in training the master tree farmer is repaid by them giving a further 70 hours voluntary extension. Melbourne University, the Otway Agroforestry Network and the Joint Venture Agroforestry Program are trialing a similar approach by taking a percentage of active farm forestry practitioners through intensive training in agroforestry options suitable to their region (markets, species, establishment methods) in exchange for transferring information to other interested farmers by conducting farm visits and offering preliminary assessments (technical advice given will be checked by professional foresters).

(e) Further promoting landscape design skills and farm planning skills which incorporate commercial farm forestry where appropriate, and which ensure that farm forestry landuse options are accurately identified within the farm-planning process.

8.1.1 Analysis and discussion – Impediment 1

Complexity, risk and long time-frames are all major factors in the lack of actual investments in farm forestry. Commercial tree-growing still remains a competitor to agriculture in many situations, and any complementary benefits are dependent on good design which is based on sound understanding of the systems involved.

Farm forestry has to be viewed in terms of the range of options into which a farmer or investor can put their time, effort and money. Compared to other potential investments, it is one which can be risky, complex, long-term, and with few financial returns.

Farmers have good reason to be risk-averse, particularly in relation to schemes which are being promoted by do-gooders, government officials and quick money merchants.

Farming papers often report on how farmers have squandered hard-earned cash in search of money from ‘alternative crops’. Farm forestry is often seen in this light.

While the environmental benefits of farm trees are becoming increasingly well recognised, it is the economics and commercial returns which will dictate the willingness of landowners and others to invest seriously in commercial tree-growing (Speedy 1996).

8.1.2. Consultation outcomes

Farming culture is considered to be a secondary impediment and more a reflection of market and other conditions than a determining factor. It is generally felt that the cultural issues would take care of themselves if the market fundamentals were addressed.

Australian farming culture is dynamic and capable of responding to actual opportunities. This capacity for adaptation is sufficient to ensure that farm forestry opportunities will be acted on if and when market signals are strong enough to inspire the change.

There has been considerable change in farm culture. Many farmers are now actively interested in or experimenting with farm forestry, as evidenced by attendance at field days and seminars.

There is general support for the solutions proposed. Care needs to be taken in the way public sector resources for farmer education programs are used and justified. They should be well targeted and implemented in ways which maintain grower confidence.

Channelling resources for training and information transfer through the regional farm forestry committees, networks and cooperatives is supported.

8.1.3. Regional variation

It is dangerous to generalise about farm culture as it is not homogeneous. There is also marked regional variations in attitudes to commercial tree-growing.

Different regions have vastly different historical, cultural and physical circumstances which are affecting developments in farm forestry. The following are listed as significant examples:

- Victoria and WA have had 10 to 15 years of farm forestry extension and education. Both States have major salinity problems which are motivating searches for large-scale tree-growing strategies (or high-water-use agriculture systems). Rowan Reid (pers. comm.) believes that this has stimulated the emerging farm forestry culture.
- South Australia's small areas of high-rainfall land have a long history of intensive use for horticulture and plantation forestry. It is here that the State's plantation forestry efforts are focused, and farm-based forestry acts as adjunct to these.
- Recent international joint ventures in WA have generated great interest and activities in growing blue gums *E. globulus*, and Conservation and Land Management (CALM) is now actively exploring possibilities for lower and medium-rainfall farm forestry crops such as *Pinus pinaster* and Oil Mallee.
- In NSW and Queensland the rainforest revegetation movement is providing increased stimulus for commercial farm forestry plantings, but clearing continues in many regions, providing a contrast to the revegetation activity nearer the coast.
- In Tasmania, several factors contribute to quite unique circumstances. These include the scale and significance of forestry to the State's economy, and the importance of both

private forestry (individual and corporate) and the emergence of well-organised growers' cooperatives.

8.1.4. Progress in implementing solutions

Much is currently under way, particularly as result of the financial support of the Commonwealth FFP projects. However, we heard persistent calls from growers for improvements in information transfer between regions and between interested growers and State agencies or other R&D providers. Developing effective means of communication and technical transfer remains an important issue for farm forestry.

Innovative training and communication methods which establish links between all aspects of the industry (professionals, contractors, growers) are required.

8.1.5. The role of governments

Governments have a role in financing education and extension, but important questions need to be asked, including:

- Are the State agencies the most suitable bodies to deliver extension services?
- Who else is capable of doing this?
- What are the implications of competition policy when applied to extension, industry support or education programs?

Many growers feel uncomfortable with the State forest services being extension providers as well as principal competitors with private growers.

There is no single or universal approach to the provision of extension services, and views ranged from services being fully commercial to fully publicly provided.

Numerous organisations from research and development corporations (RDCs) to TAFE colleges and universities have important roles. The education sector appears to be competitive and responsive to emerging demands.

8.2. Impediment 2. Lack of a farm forestry culture: agricultural and forestry professionals

The culture and traditions of the forestry profession and industry and the limited experience in farm forestry of agricultural advisers contribute to slowing the development of farm forestry.

The forestry profession in Australia has been successful at developing plantation systems suitable for mass wood production. But it appears to have been hesitant or resistant to becoming involved in the diversity of opportunities presented by farm forestry, with the requirement to address natural resource management issues and complex relationships to agricultural systems.

The importance of a single species – radiata pine – demonstrates the triumph of professional and industrial forestry. While many of the technical and knowledge gains (e.g. genetic improvements, understanding soil–tree relationships) could be very significant for farm forestry, unfortunately

the systems developed for industrial plantations are not necessarily appropriate to farm forestry. Greater sensitivity to social and environmental goals is required.

Achieving multiple objectives characterises much farm forestry effort. A prescription approach to plantations or to farm production does not easily accommodate the numerous and varied factors involved in designing appropriate agroforestry systems.

While it is dangerous to generalise about any profession, it seems that the forestry profession has become something of a ‘closed domain’ or ‘guild’, while the agricultural profession has focused largely on increasing short-term production.

Solutions

To achieve an informed farm forestry culture, an opening up of the professions is required. Foresters have many skills that are valuable and that will increasingly be called upon. But it will be necessary to abandon prescriptions that are only aimed at maximising wood production. Advising on the design of systems that accommodate multiple objectives and relationships will be necessary.

While Australian foresters have established a reputation for developing culturally sensitive community-based forestry overseas, it is harder to find similar examples in Australia. A greater focus by the profession on creating ‘culturally sensitive, community forestry’ would help break down barriers between the ‘professional’ and the community.

Agricultural research extension has also frequently been aimed at developing prescriptions for farming systems. New approaches will be required to accommodate the diversity of farm forestry options and interactions.

Farm forestry offers many opportunities for agricultural and forestry professionals but will require genuine commitments to multi-disciplinary approaches. Professional advancement through increased postgraduate training is called for and a coherent national accreditation system for farm management and forestry consultants in farm forestry.

8.2.1 Analysis and discussion – Impediment 2

The availability of jobs for forestry professionals was cited as the biggest determinant of the type of training undertaken by forestry courses. Should the industry grow, the farm forestry ‘market’ will pull in the professionals, and those that train them will accommodate the new needs.

Alternatively, the review of forestry education indicates that forestry as a profession has reverted to increasing specialisation and focus on technical issues at the expense of social and political complexity in forest management (Kentish and Fawns 1995). Since then the Australian National University has been through a major revision of its curriculum in the last year in an attempt to broaden its course.

8.2.2 Consultation outcomes

Despite the attendance of many forestry professionals at our workshops, few vigorously challenged this assessment of the profession.

While these issues may be significant in terms of equipping foresters and agricultural professionals, they are not regarded as significant in stopping the development of farm forestry in Australia.

8.2.3 Progress in implementing solutions

There are numerous courses, field days and training arrangements underway, including the work being undertaken by Melbourne University in the Graduate Certificate in Farm Forestry and the Master TreeGrower Courses, the work of ANU and Greening Australia, and the field days and seminars of regional plantation committees and others. Numerous organisations are considering how best to achieve effective farm forestry training arrangements, for example, in south-western WA the 'Timber 2020' initiative is considering an Albany summer school offering a range of different training levels from postgraduate to farmer short courses.

8.2.4 The role of governments

Government programs such as the Commonwealth's FFP have an important role in articulating social priorities as well as funding specific projects, but the solutions should be driven mainly from within the universities and the professional associations so that members or students are able to realise new employment opportunities. The universities that train foresters, agricultural scientists and resource management professionals have a central role in educating professionals capable of dealing with the complexities of farm forestry systems.

8.3 Impediment 3. Lack of a farm forestry culture: State agencies

Sources of advice on farm forestry are dispersed across numerous agencies, both State and Commonwealth. There is not a single easily accessible contact point in each State or region, nor is it easy to know what information is available in another State or region – information 'hitchhikes' around the country.

Responsibility for farm forestry has not been clearly defined within the State Government resource agencies, accentuating the possibility of inconsistent advice on farm forestry from agriculture and forestry departments (or divisions of amalgamated departments).

Despite the desire to avoid giving inconsistent and/or conflicting advice, it is easy for this to happen through lack of communication between different extension services. Whether this happens because of organisational limitations or whether it reflects the development of distinctly different cultures within government departments is irrelevant. But the fact that governments are not able to coordinate the advice given to landholders is of concern.

The increasing corporatisation of the State Government's agencies or research institutes seems to be making it more difficult to get free access to information on farm forestry plantations. Information is increasingly conceived of as a commercial product despite much of its development having been funded by the taxpayer. Agricultural and soil conservation extension services have rarely been able to provide accurate advice on the commercial aspects of farm forestry.

Solutions

1. Clarify the roles of State agencies. In WA, the recent Farm Forestry Task Force has recommended and has had ministerial agreement to establish a Farm Forestry Development Group (FFDG) to oversee and promote farm forestry in WA. To this end the State Government has agreed to the following recommendations re coordinated advice:

- That CALM and Agriculture WA establish by 30 June 1996 a coordinated information service to be called the Farm Forestry Advisory Service.
- That the Farm Forestry Advisory Service ensure that the small operators be made aware of forestry safety regulations and that training in such procedures including fire prevention should be included in FarmSafe WA program.
- That the Farm Forestry Advisory Service be responsible for identifying and promoting 'whole of farm' examples of successful farm forestry, demonstrating both the commercial and environmental benefits of its implementation.
- That the State and Federal Governments provide substantial new funding for a range of coordinated CALM/AgWA research and development. It would address tree and woody perennial crop species and products, processing and marketing, and the integrated production systems. And:
- That the government facilitate the integration of farm forestry into agriculture. That farm and catchment-scale technical programs be developed to address hydrological, conservation and agricultural objectives so that farm forestry can be confidently integrated into the landscape, and that the State Government offer a direct subsidy for farm and catchment planning as part of its contribution to the development of farm forestry.

2. There is a need for a farm forestry directory. At present there is no easy way of locating information (commercial and government), and the new regional farm forestry committees established under the WAPIS will need some kind of networking tools. A directory would give rapid access to interested parties in order to source potentially important information. It would support the emerging regional plantations committees so they don't each have to reinvent the tree-planter or the wood-flow planning methodologies.

Any directory should contain sections on:

- i. sources of information – CSIRO, State agencies, consultants and key references, relevant models and databases – PLANTGRO, TOPOG, TREEDAT etc.;
- ii. suitable technology for establishment, management, harvesting and processing including information on planters, direct seeders, pruners, mobile sawmills etc.
- iii. sources of technology;
- iv. conceptual tools, including:
 - how to do a wood-flow plan;
 - how to create an inventory of existing farm forestry species in the area;
 - how to establish a farm forestry cooperative and some of their roles;
 - standard commercial options such as joint ventures;
 - species selection methods and models;
 - examples of farm forestry incorporation into catchment or farm planning;
- v. sources of seed and selected plant materials for farm forestry use.

8.3.1 Analysis and discussion – Impediment 3

In most States of Australia the late 1980s and early 1990s have been a period of turbulent public sector reform, with a sense of institutional chaos and uncertainty prevailing. Some States, such as Victoria, have amalgamated departments to create combined resource management

departments, while others have separated large departments and created smaller ones with more discrete functions, for example Queensland's creation of a Department of Natural Resources.

In addition to reforms at the State level, numerous regional processes have led to the creation of catchment management and regional development committees. These may have added to the lack of coordinated advice, but the recently formed regional plantation committees have the potential to bring regional initiatives together and tailor advice to regional circumstances.

8.3.2 Consultation outcomes

Confusion and competition within State agencies was regarded as a major impediment and one that the States should sort out as a matter of urgency. While the magnitude of the problem and the accuracy of the above description is dependent on the arrangements used within each State, the desirability and importance of a consistent and unified approach to farm forestry development is widely supported.

Tasmania appears to have sorted out the government–private grower relationship through the creation of Private Forests Tasmania. There is wide support for the Tasmanian approach where responsibility for private forestry, including farm forestry, is separate from the agency responsible for managing State forests. Other States still have important reforms to carry out before being able to provide a unified approach to farm forestry.

The WA model described above has some support, as does the development of a more independent industry, or community network-based approach to service provision.

The Victorian agency staff indicated that the government was moving them to the 'client–service provider' model where State agency services would be dependent on defining the client clearly. In the case of farm forestry, the farm forestry networks would be the clients and the private forestry unit would operate as the service provider.

In NSW there are three agencies with direct involvement in farm forestry: NSW State Forests, Department of Land and Water Conservation and NSW Agriculture, emphasising the need for a unified approach.

Work done by Southern Cross University (Nick Emitage pers. comm.) indicated that farm forestry programs should use market research principles to segment their client groups because understanding the diversity within a potential target audience is crucial to understanding which communication channels are most effective.

There is support for using farm forestry networks or regional cooperatives as the main channels for information dissemination and exchange. To fully execute this the State budgets for farm forestry extension should be distributed competitively through effective regional organisations, rather than being expended through the State agencies. Introducing competitive tendering for extension and information dissemination is consistent with competition policy and needs to be further investigated. Strict interpretation of this policy implies that reforms will ensure competitive delivery of extension and communication services.

8.3.3 Progress with solutions

Varying degrees of progress depending on the State.

8.3.4 The role of governments

The sectoral nature of government agencies has meant that they have failed to give integrated advice on farm forestry. State Governments could demonstrate their commitment to farm forestry through well-designed reforms. State Governments have principal responsibility for these reforms as they relate directly to the reorganisation and functions of those of their agencies involved with primary industries and resource management.

Successive government inquiries have indicated broadly the potential of farm forestry, and the WA example, quoted above, demonstrates the need for greater cooperation between the agencies involved. The only vested interests that may inhibit cooperation are the ‘empire-builders’ within government agencies who seek to maximise staffing, size, budgets and functions within their sections. This is a serious issue and one that could be resolved by a competitive approach to service delivery.

8.4 Impediment 4. Lack of supporting knowledge systems, and poor knowledge of many potential farm forestry species

Nothing will kill enthusiasm for farm forestry more rapidly than poorly conceived and implemented farm forestry schemes. Poorly selected species and provenances, incorrect information, false expectation of growth, yield and financial return will rapidly destroy the emerging interest in commercial tree-growing on farms.

There is inadequate knowledge at both the formal and informal levels about the performance of many potentially important farm forestry species and provenances. Apart from a few main commercial species in established forestry or plantation regions, there is poor knowledge to support the matching of species to sites, the anticipated growth rates, the best establishment and silvicultural regimes, and the likely quality and values of commercial production. Further, the lack of effective and tested knowledge means that many plantings are either confined to tried and proven species or are ‘experimental’. But the ‘experiments’ lack any organised way for knowledge gained to be transferred. Much species selection could correctly be described as hit or miss, but there is not even the potential for learning from others’ mistakes as there is no effective way of building up knowledge from experience in the farm forestry sector. The use of predictive models based on knowledge of native forest species attributes and biophysical data sets is not common practice in Australia, but the CSIRO’s Australian Tree Seed Centre has done so extensively for selection of species for the establishment of plantations overseas. Recent work has been described in detail in a volume of conference proceedings entitled *Matching Trees to Sites* (ACIAR and CSIRO 1995).

The dispersal of R&D efforts across a diversity of organisations with few structured or formal means of cooperating further impedes the progression of farm forestry knowledge. Farm foresters have few opportunities for determining R&D priorities or gaining access to R&D results in any structured way.

As already mentioned, the increasing corporatisation of the State Government's agencies seems to be an emerging threat to the free flow of knowledge. New corporatised R&D agencies are operating on a mixture of publicly and privately funded R&D. There is an increasing sense of competition, including competition for R&D project funds, commercial contracts and status. Information is increasingly conceived of as a commercial product despite much of its development being funded by the taxpayer.

Collection and dissemination of knowledge about farm forestry can best be described as *ad hoc*, reflecting its low priority. Historically, the lack of awareness of the opportunities signifies the lack of a farm forestry culture within the 'knowledge sector'.

Solution 1: Coordinated farm forestry information systems

Clarification of roles between public and private sector R&D is called for. A coordinated information system on commercial farm forestry needs to be developed if we are to learn from past and current plantings. Each planting is a potential trial – a source of knowledge – yet because of poor records and the failure to record experimental and commercial plantings using a systematic approach, the R&D opportunities are missed.

The adoption of a standardised approach to 'performance recording' similar to that used in the livestock industry could overcome this knowledge impediment, but requires an agreed minimum data set and some standardised terms and techniques. Knowledge of tree performance gained from both native forests and plantations could be recorded and available across Australia as a standardised data set if agreement can be reached on a national standard assessment method. The existing systems such as TREEDAT should provide the foundation for such an approach.

Standard information recorded on plantings should include:

- location in latitude and longitude;
- species and provenance (if available);
- climatic conditions, rainfall etc.;
- site and soil characteristics;
- establishment techniques – fertiliser and weed control etc.

To this basic set could be added growth rates achieved by specified ages, and what is considered the full potential and market opportunities for timber or tree products and the specific 'other' non-wood benefits the plantation, forest or trees provide at each location as the case may be. Additional information could be added. This would be seen as an extension of the TREEDAT database and would be useful for identifying experience and knowledge derived from other plantings.

Such recording would assist 'ground-truthing' and would help to refine existing CSIRO models, e.g. the climatic mapping programs BIOCLIM and PLANTGRO (see ACIAR and CSIRO 1995 for examples).

Solution 2: Regional farm forestry inventories

While models give us a theoretical capacity to make predictions, it is important that they are tested. To support the important predictive capacity of models, it is possible to make greater use of an 'inventory approach' to determine how well species have performed in the ground. By looking backwards, examining past plantings, it is possible to interpret the 'knowledge contained in the trees'. Existing trials in the ground, trees planted for various reasons, offer us a wealth of

knowledge. With a concerted effort it may be possible to get the knowledge 'out of the trees', understood and used more widely. Much useful information could be revealed.

There are public and private trial plots and isolated plantings throughout Australia that to our knowledge have never been accurately evaluated or centrally recorded. Despite years of catchment and land protection plantings, and numerous revegetation and farm forestry projects, in most cases hard figures are missing, making assessments of growth rates and economic potential speculative.

Regional plantation committees, regional economic development organisations or catchment committees could commission a rapid assessment of relevant information on species and growth rates within identified zones (e.g. catchments, various climatic and geological zones). In order to develop accurate inventory of what's growing where, natural regeneration and plantings (plantations, windbreaks, roadsides and soil conservation planting etc.) should be documented, noting species, growth rates and conditions. (One constraint to this approach is that provenance information is frequently lacking for old plantings.)

Assessment could be a cooperative undertaking between State agencies, universities, local tree groups, catchment committees etc. (Scanning old departmental records could reveal useful facts and figures on locations and planting dates.) Not only would this significantly benefit community education, but it would also generate other options for using the information including analysis of growth rates and potential economic yields, returns compared to grazing etc. Information on locations, for example, could be recorded on computerised databases, or mapped using the Geographic Information System

The knowledge gained would be valuable in formulating regional farm forestry strategies, but it should also be supported by national coordination and analysis. Information on species suitability to sites and climatic zones could be extrapolated from initial inventories in much the same way as the PLANTGRO model provides advice extrapolated from knowledge of native forests. Thus information would be relevant beyond its region of collection, and 'transportable' to assist selection of species in similar climatic and geological zones.

Inventory approach – an example

Can you currently interrogate any kind of database (manual, computerised or human memory) that, if asked about spotted gum and the Murray Darling Basin, would provide the following:

- 42-year-old spotted gum growing on the banks of the Hume Dam (planted River Murray Commission 1954) are now sawlog size (some in excess of 600 mm diameter) – this growth achieved on 26-inch rainfall in clay soils typical of vast areas of the hills of the Murray Basin. Where else are growth rates like this possible?
- On the edge of Ouyen in the Victorian Mallee is a planting of spotted gum that thrives on leakage from a channel that is only filled once a year and 10 inches of rain.
- 20-year-old spotted gum from the Shepparton Irrigation Districts produced furniture timber.

What else is out there? Nobody is sure. There has been little follow-up assessment of past plantings. Accurate assessment of what has already taken place will support farm forestry implementation programs.

8.4.1 Analysis and discussion – Impediment 4

Lack of knowledge and lack of access to knowledge is a primary impediment that substantially limits farm forestry development. It limits the capacity to predict growth rates or economic returns or to match trees to sites for all but proven species in major plantation regions.

The emergence of an informed farm forestry sector directing its efforts to high-quality, niche or commodity markets could be accelerated by the development of an open yet rigorous supporting knowledge system.

While there is much activity around the country it is dispersed and lacking in coordination and networking.

There are already many databases established and maintained by various agencies or corporations around the country. An urgent priority is the creation of a system to make these compatible or comparable. Existing databases do not need to be standardised, it is possible to create a system of filters that will allow the transfer of the different sets of information to a common system, without requiring each organisation to modify its current working system. Such a task should be undertaken nationally and should be linked with or compatible with the information in existing natural resource information systems.¹³

There are also numerous models of various degrees of sophistication and detail. The relevance, robustness and applicability of these should be assessed before funding of further modelling work. The Joint Venture Agroforestry Program (JVAP) recently ran a workshop that aimed to assess existing models and the results are to be published shortly (Vercoe in press).

There is general support and enthusiasm for community inventory and measurement programs, but some concerns exist about the quality of tree measurement data derived from community programs. Data quality and reliability issues have been addressed adequately in other arenas

¹³ This approach has been used successfully by the Australian Collaborative Land Evaluation Program. This program has developed the PC-Sites System which can extract information, compare and interrogate various state and national soils databases without changing their individual requirements.

where technical competence is also required. For example, community involvement is proving extraordinarily successful for monitoring water quality and fauna and flora. Alexandra and White (1996) published a directory of community monitoring in Australia that contains listings of over 200 community-based projects or networks undertaking some aspect of environmental monitoring. Many of these networks operate nationally, adhere to credible technical standards and use agreed monitoring protocols. The directory also contains case studies and documentation of the organisational and technical issues that contribute to successful community monitoring.

Attempts to create a farm forestry inventory must be coordinated nationally, but implemented regionally, through adoption of an agreed monitoring and reporting framework. Designing and developing the framework for a system capable of applying the potential GIS (Geographic Information System) and analytical capacity available must almost certainly be undertaken at a national level, while the actual inventory work is best undertaken regionally. This is the intended approach of the Bureau of Resource Science in its attempt to develop a framework for the creation of a national farm forestry inventory. The proposed inventory aims to support the efforts of the regional plantation committees and will complement the National Plantations Inventory and the National Forests Inventory.

Great value could be gained from linking inventories to modelling and analytical capacity, which would enable quality information and predictions to be derived from the system.

In addition to the development of national inventory and the coupling of this to modelling and analytical capacity, there are several farm forestry Internet web sites proposed or proceeding as a forum for interactive electronic information exchange relevant to both a regional and national scale.

8.4.2 Consultation outcomes

There is general agreement that greater knowledge is required to support farm forestry development, but many different perspectives emerged as to how this should be achieved. Some saw the problem as essentially one of technical transfer, while many growers saw that they were kept 'locked out' of information by the State agencies or corporations.

Another legitimate concern was that a focus on electronic information systems is tending to discount the value of humans as information carriers and exchangers. It was pointed out that governments should not lose sight of the value of skilled and experienced people in providing the necessary information to support the development of farm forestry.

The variety of views also depended on whether the farm forestry system was conceived of as one in which well-proven species like radiata pine or *Eucalyptus globulus* are being used as the mainstay or whether it was a system pioneering techniques and species, for example an attempt to create complex analogues of subtropical or tropical rainforests with planned successions resulting in a dominant canopy of commercial timber species.

The need to get the knowledge 'system' working better and more coherently is well recognised but will require cooperation among R&D and extension organisations involved in farm forestry across Australia.

The creation of the regional plantation committees and the increased interest in farm forestry generally is placing greater pressures on those organisations capable of supporting the growing interest with know-how.

The nature of the market for forestry information is changing: where forestry R&D and related communication could previously satisfy corporate or agency needs, it must now be capable of addressing the needs of a wider and more dispersed audience that does not necessarily have corporate links. These changes are creating many organisational and communication challenges for forestry R&D that include:

- finding ways to efficiently satisfy the dispersed demand for quality information from increasing numbers of private growers;
- creating opportunities for regional networks to link up and exchange information;
- aligning or standardising the divergent attempts at modelling and database development;
- developing a national approach to compiling and extracting results from previous trials and private experimental plantings;
- recognising regional diversity in any national approaches to furthering or providing information;
- researching a wider range of species than those traditionally the subject of forestry trials; and
- recognising that the integration of forestry with farming activities adds complexity.

8.4.3 Progress with solutions

The JVAP is funding several projects to undertake the assessments of past trials, and the Commonwealth Bureau of Resource Sciences is preparing an inventory of Australian Plantations. But any new plantings (even government-funded ones) are proceeding without being referenced using a standard protocol. TREEDAT has been an attempt to develop a standardised database, and any future efforts should build on the experience gained from TREEDAT, other databases such as REX, and modelling efforts.

The FFP and the Bureau of Resource Sciences are piloting concepts for a national farm forestry inventory. The JVAP is trying to get the tree databases together in compatible formats, and the regional farm forestry networks/projects are actively pursuing information and R&D requirements for many of the issues.

8.4.4 The role of governments

Governments can have a central role in providing information and advancing knowledge. Several Commonwealth Government programs actively support the development of better knowledge of farm forestry, including the JVAP and the Commonwealth FFP. Other reforms, however, may counteract these efforts by restricting access to information.

Institutional inertia and rivalry may stifle the cooperative approach needed for open access to information. The institutional chaos described above, and the recent corporatisation of many forest services, may also be making it harder for dispersed farm forestry groups to access information. Corporatisation may make it more difficult to extract information or historical records of trials. This should be avoided at all costs because it will severely disadvantage progress in bringing relevant information forward into common use.

II PUBLIC POLICY IMPEDIMENTS

Redefining the role of State Governments as commercial wood-growers

Prices will be market-based, at least cover the full cost of effective management (including regeneration) attributable to wood production, including a fair return on capital, and provide an adequate return to the community for the use of a public resource (Commonwealth of Australia 1992a).

Numerous aspects of public policy have considerable impacts on farm forestry prospects and are closely related to the economic and market impediments. In particular, the States' log-pricing and allocation policies largely set the market conditions and therefore determine the economic settings in which private forestry production competes. The relationships between public and private growers is not clearly defined. The same State agency is often a promoter of, and a competitor with, private forestry production.

Private growers compete with timber and wood products sourced from native forests, State-owned plantations, imported timber and also materials that can substitute for wood and wood products (metals, concrete, plastics). Transport efficiencies ensure that most markets for farm-grown forest products are close to log sources. In most cases private growers in Australia are competing with either State enterprises or large industrial concerns. The competition with the States is accentuated by the fact that they are the principal owner of both the softwood plantation estate and extensive areas of native hardwood forests. These issues are further complicated by the fact that the other major plantation growers are also all major processors and therefore significant buyers of State-grown timber. Because of their domination of supply and their 'command and control' approaches to allocation and pricing, the States effectively set the price of logs in Australia.

The fact that the state is the major supplier of most logs from both plantations and native forests ensures that government policies have enormous impacts on the market for farm forestry products. There is no other primary product where the state is the major supplier of raw materials to industry; for example, we do not have government wool, wheat or beef farms. With no other rural commodity does the state engage in guaranteeing supply of raw materials to manufacturing industry.

In no other sector does the state guarantee supply to industry in the same way as in forestry. Imagine if a large blanket manufacturer offered to set up a plant in a big regional centre, but only on the basis of the state guaranteeing supply of wool. Imagine further that upon accepting these terms the state began acquiring and operating wool farms in order to meet its commitment. Laughable as it sounds, private wood-growers are in fact faced with such a scenario.

If farm-grown timber is to be 'just another farm crop', then working out how, why or under what circumstances it must compete with the state, as the biggest grower, will be critical. Numerous reforms are required if private growers are to operate in fair markets. For example, growers or investors are uncertain of how they will be treated by the government agencies who operate as both growers and regulators.

The State forest services are undergoing changes in most States that has resulted in some being made corporate entities. This goes some way towards 'privatisation, but none are fully converted.

These reforms, which have created public corporations, have not necessarily helped to resolve these issues. The public corporations are hybrid creatures operating with the backing of considerable public investment and large accumulated debts (SA is the exception); they have the instincts of business but not the public accountability of a government department. The

perception is that their commercial instincts are heightened, but they still have the monopolistic advantages of a government department. None of them have become 'privatised' to the point of paying municipal rates, but they have diminished or shed their public-good responsibilities such as extension and making research results freely available. The services deny misuse of monopoly powers and even quote QC opinion (which they have commissioned) that they are not transgressing the Trade Practices legislation.

In the past State forest services were able to establish vast plantation estates on Crown land using low-interest loans from the Commonwealth. They have been able to use Crown land without paying local government rates. The State services are selling wood in competition with private growers without necessarily being subjected to the same costs of production.

The use of government powers to create such competitive advantages over private growers has the potential to seriously corrupt the markets for plantation products. The National Competition Policy aims to ensure that government enterprises do not have unfair advantages over private enterprise.

8.5. Impediment 5. Public agencies or private corporations? Is there a conflict of roles: government as investor, grower and regulator?

The unclear or conflicting role of State Governments as both regulator and dominant grower/supplier contributes to a sense of unease and uncertainty to private enterprise wood production. The creation of public corporations has not resolved this tension.

Solutions: Clarify roles. Introduce external scrutiny

1. Clarify roles; ensure that the same agency cannot be operator and regulator.
2. Subject State forest agencies to external examination by the Australian Consumer and Competition Commission to ensure compliance with Competition Policy.
3. Subject public enterprises to the same regulations, rates and charges as private enterprises.
4. Introduce regular external scrutiny to State agency operations:
 - to ensure compliance with the same regulations as private growers;
 - to review progress in introducing open or competitive pricing of logs;
 - to identify to what extent the policy principles that are used to determine prices are made clear by the State producers; and
 - to establish if State agencies are using their market power or unfair access to information to gain advantage over private growers. For example, the difficulties that existing small growers have in marketing their thinnings is an important disincentive to attracting more landowners into growing trees commercially, as these growers compete directly with thinnings from State-owned plantations.
5. Introduce uniform accounting standards for public forests agencies. Publish annual accounts and subject these to public scrutiny.

8.5.1 Analysis and discussion – Impediment 5

The relationship between the prices charged for native forest logs by State Governments and the confidence of investors in private forestry is fundamental. Governments are therefore obliged

not only to promote farm forestry but also to ensure that their own forestry operations do not operate in ways that breach the principles of competitive neutrality.

To gain the confidence of private growers and investors, the States must openly disclose information on their forestry accounting and valuation methods and any other relevant reforms. Reforms intended to meet the policy goal of competitive neutrality must be communicated widely, and agency accounting and performance must be open to scrutiny by third parties.

The capital accounting methods used by State forest agencies are important to the commercial valuation of wood produced.

8.5.2 Consultation outcomes

This is widely regarded as one of the more significant impediments. The relationship between private and public forestry is regarded as a crucial determinant of confidence and investment. Along with questions of taxation and certainty about harvesting and planning restrictions, the fundamental economic determinants of confidence in farm forestry relate to questions of open market pricing and unfair competition.

8.5.3 Progress with solutions

The counterproductive nature of the relationship between private and public forestry has been recognised in successive inquiries in the past, but there has been slow progress in implementing changes.

In 1991 the National Plantations Advisory Committee (Commonwealth of Australia 1991c) stated bluntly that ‘one of the most serious impediments to the development of plantations by small landowners and farmers is the tangled web of restrictions and imperfections that distorts the pricing system for wood in Australia’.

In 1993 the Industry Commission recognised the same fundamental relationship in its report *Adding Further Value to Australia’s Forest Products*: ‘to the extent that logs are underpriced, the activities of the forests products industries are subsidised by taxpayers. Underpricing by forest agencies also depresses the prices obtainable by private wood growers and, hence, discourages private sector investment in plantations and agroforestry’ (Industry Commission 1993).

And by 1996 the National Farmers Federation stated in their paper on farm forestry that ‘the timber pricing policies of State agencies act as disincentives to farm forestry. This means that there is less incentive to develop alternative hardwood and softwood supplies to bolster our native forest resources’ (NFF 1996).

Competition with the state remains a central issue despite the fact that previous policy commitments should have addressed these concerns. In 1992 all State premiers and the Prime Minister signed the National Forest Policy clearly committing the States to move to market-based pricing: ‘Prices will be market based, at least cover the full cost of effective management (including regeneration) attributable to wood production, including a fair return on

capital, and provide an adequate return to the community for the use of a public resource' (Commonwealth of Australia 1992a).

An important and unresolved implication of this policy commitment is the introduction of a system of accounts that would enable forest agencies (or those who scrutinise their activities) to determine the success or otherwise of efforts to move towards market-based prices – prices that cover both operating and capital costs, as well as providing an adequate return to the community as the forest owner.

There is little confidence that this is happening, despite widespread recognition of the need for a standardised set of forest accounts that are both transparent and accurate.

Adherence to National Competition Policy offers some hope of introducing such accounts, but governments have not ranked forestry highly in the reform processes introducing competitive neutrality. However, actual progress arising from Competition Policy reforms are hard to determine at this stage. Even the recent NSW Auditor's report has trouble with the accounting methods used by State forests and fails to identify any significant impact from implementing competition policy (NSW Government 1996).

8.5.4 The role of government

Government should adopt a coherent reform agenda that addresses these issues. Central government agencies such as State and Commonwealth Treasuries and Premier's Departments, as well as auditors and the ACCC, should scrutinise the implementation of competition policy in relation to forestry.

8.6 Impediment 6. Distorted or unfair log markets

The main issues concerning operation of markets for farm forestry products are:

- the lack of obvious and genuinely competitive markets in many regions that have effective regional monopolies of buyers and sellers, e.g. single large wood-using industry within economic haulage distance and/or governments as the majority supplier;
- the potential for markets to be corrupted by the dominance of the State as a supplier; and
- State Governments' command-and-control approach to pricing logs and allocating rights to harvest.

Solutions: Ensure introduction of competition; eliminate anti-competitive practices

1. Introduce greater competition:

- into markets for logs – allow markets to determine log prices;
- into markets for rights to harvest native forests and plantations – transferable rights, market mechanisms for determining value of allocation rights (see Young and McCoy 1995 for more detail).

2. Ensure that States cannot use monopoly powers and regulatory roles to disadvantage private growers. State forest agencies should move rapidly to ensure they are not disadvantaging private growers and are complying with National Competition Policy. They should be subjected to regular external examination by the ACCC to ensure compliance.

3. Any corporatisation of State forest agencies or the privatisation of State plantations must include ways to break down monopoly powers and introduce greater competition into markets for logs, for example to specify maximum ownership in any region.

4. Sell off state-owned plantations (or the rights to cut plantations) and allow market forces to operate. State roles in relation to plantations could then be more clearly defined. The state could regulate all plantation activities in terms of safety, environmental effects etc. There would be no potential for conflicts of interest, and if wood production was a profitable and rational use of land, then ‘the markets’ would invest in it.

5. Retain public ownership of native forests but clearly define the ‘rights to harvest’ (amount, quality and tenure) and introduce competitive markets for ‘rights’.

6. Separate government agencies’ responsibilities for forest production and regulation, and subject all forest growers to the same planning and regulatory restrictions regardless of ownership.

Note: The following analysis relied heavily on documentation that has been published in the AFG journal or documents held by Michael Hall on behalf of the AFG, the peak body representing private forestry interests in Australia. It is published with permission from the AFG.

8.6.1 Analysis and discussion – Impediment 6

The nature of markets for farm forestry products contributes to an acute sense of insecurity on the part of many investors in private and plantation forestry in Australia.

Governments have agreed in principle to change and to abide by the Trade Practices provisions, but until there are complete and detailed examination of their business arrangements, we do not know what restrictive practices continue.

For example, in the early 1990s the AFG was concerned that the contractual arrangements between the ACI at Wagga and the NSW Forestry Commission explicitly excluded private growers’ wood. Evidence of this restrictive practice is clear from the contract¹⁴ of sale to the processor, which is dated 17 January 1992. This stated that no private wood (non-Forestry

¹⁴AFG has a copy of the contract between ACI Wagga and NSW State Forests and presented this as evidence to the ACCC, requesting that the State forest agencies be audited for competitive neutrality.

Commission) was to be purchased during 1992 other than the 4000 tonnes already committed, and that none was to be purchased in 1993.

Whether the contracts with ACI continued with similar restrictive clauses or whether similar contracts are common is not known. While the ACI manager has been trying to buy private wood for the Wagga plant in recent years, we understand that he has been prevented from doing so by the nature of the current supply contracts with NSW State Forests.

The 'take-or-pay' clauses common in government supply contracts have the effect of restricting supply from competitive sources and therefore should be examined by the ACCC. The nature of these clauses and the likely mechanism of exclusion are further explored in the letter by Francis Clarke on ACT Forests and a response from Graeme McKenzie-Smith (1995).

8.6.2 Consultation outcomes

Competition with the States is perceived to be a major issue. These perceptions may be out of date as State Governments are involved in various reforms that may have far-reaching consequences for competition in the forestry sector (see letters from premiers below).

Private growers should not have to rely on assurances by the forest services; a third-party audit is called for. The audit needs to be undertaken by a respected third party such as the ACCC, or the National Competition Council.

8.6.3 Progress with solutions

On 22 July 1994, *AFG* wrote to the State premiers seeking advice about their government's plans for implementing competition policy commitments and introducing greater public accountability to their commercial forest operations. Summaries of the replies to *AFG* follow:

(1) NSW Premier John Fahey, 12 September 1994

The NSW Government is embarking on a number of reforms to forestry administration to improve efficiency and facilitate greater competition including:

- ☐ separation of the policy and regulatory roles – Office of Forestry within CALM and the operational – NSW State Forests;
- ☐ NSW State Forests has been declared a Government Trading Enterprise and is required to pay an adequate rate of return on capital to ensure market prices are paid;
- ☐ development of proposals to deregulate the hardwood log market. It is anticipated that these will be consistent with competition policy;
- ☐ reforms to legislate guaranteed harvesting rights subject to codes of practice; and
- a \$6 million expansion program for hardwood plantations;

(2) *Victoria, Minister for Resources, Geoff Coleman, September 1994*

Victorian reforms include:

- The Victorian Plantations Corporation has been established to manage both softwood and hardwood plantations. It is a State Owned Enterprise obliged to keep proper accounts, provide financial statements acceptable to the Treasurer and pay dividends to the government. It has a board of directors and is subject to the provisions of the *Trade Practices Act 1974*;
- ☐ DCNR has a wide brief including responsibilities for the management of native forests. It is required to produce commercial reports on its commercial timber activities;
- ☐ DCNR supplies 100 sawmills with sawlogs and residual logs. Prices are determined by the royalty equation system or by expression of interest and tenders. Log licences are transferable and restrictions are not normally placed on either the location of conversion facilities or the products produced;
- ☐ Australia imports significant quantities of sawn timber and the market is exposed to competition from imports;
- ☐ Not aware of any evidence that current practices restrict competition and would be prepared to follow up any such claim.

(3) *John Mickel, Office of Premier, Queensland*

In the interests of competitive marketing, the government will corporatise elements of the Department of Primary Industries Forest Service by 1 July 1995:

- Consistent with the National Forest Policy Statement, Hilmer Committee report and policy guidelines in the government's 1992 white paper on Corporatisation in Queensland;
- ☐ 'Corporatisation' will be based on the principles of clarity of objectives, management autonomy and authority, strict accountability for performance and competitive neutrality;
- ☐ It is intended that the proposed corporation will be responsible for operational functions of the current forest service and that the Department of Primary Industries retain the control of regulatory and policy functions. The corporation will be subject to a rate of return requirement and dividend policy and may be required to avoid discriminatory pricing and marketing practices;
- ☐ The Queensland Government agreed at the COAG meeting in Darwin on 19 August 1994 to:
 - revise the conduct rules of trade practice legislation to cover State Government business enterprises;
 - adopt principles on structural reform of public monopolies;
 - institute a program of review of regulations restricting competition; and
 - establish in each jurisdiction a system to carry out surveillance of prices charged by utilities and other corporations with high levels of monopoly power.

(4) *South Australia from Dean Jones, Premier, 25 August 1994*

State and Commonwealth Governments are working towards implementing the NFPS and the National Competition Report:

- ☐ The Forest Service in SA is not a monopoly and does not adopt monopoly pricing behaviour. The Forestry Group has assisted in marketing thinnings for AFG members at the expense of its own sales;
- ☐ The appropriate commercial structure for the forestry group and log allocation are being reviewed;
- ☐ Any changes will be announced as they occur.

(5) *ACT from Rosemary Follett, Chief Minister, 7 January 1994*

The ACT endorsed the thrust of the Hilmer proposals in common with other governments in Hobart in February 1994.

The ACT forestry operations are administered from within the Department of Urban Services. ACT Forests has operated a Commercial Trust Account for many years. Accounts are published annually and logs are sold under long-term contracts with local sawmills.

ACT Forests supports the development of the plantation industry in surrounding NSW through its log-trading operations. For example, in 1993/94 ACT purchased some 28% of its requirements from outside plantations, thus providing a market for logs that previously were unable to be sold in the region.

(6) *From Marshall Perron, Chief Minister, Northern Territory, 8 August 1994*

The Northern Territory endorsed the thrust of the Hilmer proposals (Hilmer 1993), in common with other governments in Hobart, in February 1994. There are no State forests in the Territory and the implications of your letter are not relevant at this time.

8.6.4 The role of governments

In principle, there is agreement that forest services should be separated from policy and regulatory responsibilities and that the newly corporatised bodies should be made financially accountable, with dividends paid to the State based on estimates of the capital invested.

The splitting of policy and regulatory responsibilities from production objectives is happening through departmental reorganisation or corporatisation in most States. Full privatisation of the plantation corporations is not yet happening. New Zealand has certainly done this; Victoria has attempted to do so but has failed to attract serious offers.

The Federal Government is driving greater micro-economic reform through the National Competition Policy agreements, and all legislation and government activity, Commonwealth and State, will be subjected to Competition Policy reviews.

8.7 Impediment 7. Problems with Taxation

For many years uncertainty regarding the taxation treatment of farm forestry has acted as a major impediment to investment by:

- inhibiting secondary markets for plantations;
- the complexity of determining capital gains tax;
- creating a climate of confusion and uncertainty through frequent changes and lack of consistency.

Solutions

Lobby for the removal of impediments. The Australian Taxation Office (ATO) is currently acting on impediments finally accepted as unnecessary problems for the industry, for example no cost base recognised for capital gains when buying and then selling immature plantations. The ATO is also looking at ways to remove the 'lumpiness' of returns and the excessive tax this engenders.

While there is no need for taxation incentives, it is essential that the impediments to forestry being an attractive investment proposition are removed.

Establishing a degree of certainty about the taxation treatment of private forestry is critical to its success. Taxation treatment is one of the key factors influencing investment.

Expanded Income Equalisation Deposits (IEDs) for plantation growers to overcome lumpiness of income. Another possibility is to allow farm forestry plantations as superannuation. The Commonwealth could introduce the possibility of nominating farm forestry plantations as part of a private super scheme, thereby changing taxation liability upon harvesting and encouraging investment. This would require tree-tenure legislation (see below).

8.7.1 Analysis and discussion – Impediment 7

This is a serious primary impediment to private forestry. Establishing a degree of certainty about taxation treatment of private forestry is crucial, since taxation treatment is one of the key factors influencing investment.

The ATO has been acting on commitments made in the WAPIS (Commonwealth of Australia 1995):

The Government will be committed to a competitive environment with the removal of tax disincentives and unnecessary regulation and [will] pursue competition policy reforms.

- ATO is to review by 31st March the tax treatment of plantations to ensure that they are reasonable and favourable to investment. Problems of taxation in the secondary sales of plantations have been acknowledged with a promise to ensure only net proceeds are taxed.
- ATO is to issue by March 1996 a clarification on the Capital Gains Tax issues on 'profit a prendre' on the sale of timber rights with a detailed review by November 1996.
- ATO is to resolve by July 1996 the problem of double taxation of plantation royalty arrangements.
- ATO is to review income averaging in plantations by March 1996 for review by Commonwealth and State Governments.
- ATO is to review investment schemes and deduction of establishment expenses by May 1996.
- The Government will publicise current tax arrangements so that investors are well informed.

Despite these commitments there is considerable residual confusion in growers' and investors' minds, even though the situation has improved with the issuing of Taxation Ruling TR 95/6 'Primary Production and Forestry' on 25 May 1995, which removed much inconsistency and uncertainty.

In May 1995, as part of the Federal Government Budget Papers, special mention was made of the government's intentions to ensure that only the profits would be taxable on the sale of immature plantations. Previously there was no deduction for the costs of purchase.

Averaging of income over the life of a plantation through an expanded IED scheme for plantation growers could overcome lumpiness of income and hence income tax treatment.

Another important area for reform that would encourage investment would be allowing farm forests and plantations as superannuation. The Commonwealth could introduce the option of nominating plantations as part of private super schemes, thereby changing taxation liability upon harvesting.

In a private letter (from M. Hall, 4 December 1996) to Hon. John Anderson, Minister for Primary Industries and Energy, it was suggested that farm forestry could (under certain safeguards) form a rollover product for superannuation and that this should be made explicit by case study under Section 66 of the Superannuation (Applications) Act.

Farm forestry could be an avenue to superannuation that farmers can take for themselves, through investment of their labour rather than through salary forgone or income invested. Government should see it as being appropriate that farmers are permitted or encouraged to grow their own super funds.

8.7.2 Progress with solutions

Much progress has been made in the last two years in removing impediments, and completion of the WAPIS-initiated reform process is entirely realistic.

Changes or clarification to superannuation legislation would be consistent with commitments to fostering farm forestry, and would provide a credible incentive for investment. The ability to shelter tax at 15% under superannuation rules works well as a form of encouragement for investment in superannuation. If this option is applied to farm forests it would encourage large plantings over time. Farm forests as a form of super have several advantages for farming families. One is a tool in succession planning: the older generation grow a lump sum retirement fund that they cash out, or they retain the rights to the plantation under State Forest Rights legislation and hand over the farm to the next generation intact.

Despite the obvious appeal of farm forestry for superannuation, it has not been easy to establish the legal status of farm forests grown for superannuation. Michael Hall has investigated whether it is possible for farmers to grow a woodlot for superannuation purposes. He found that growing farm forests for superannuation might be possible under Section 66 of the Insurance and Superannuation (Application) Act, which deals with business property exceptions. Officers in the Insurance and Superannuation Commission have said that they think that farmers could do this, while other landowners or investors may not be allowed unless the property is part of their normal and substantial business pursuits. The advice received suggested that while a farmer may be eligible, a dentist or other professionals who own a farm property would not be allowed to use a farm forest for super purposes.

L. Cogger (Witham, Cogger & Struck, Accountants, Hamilton, Victoria) gave a paper to the AFG Conference at Mt Gambier in September 1996 (Cogger 1996) that describes a method for farmers to use Section 66 of the Act to keep the super investment at arm's length by the use of trusts.

8.7.3 Role of governments

Taxation policy is primarily a role of the Federal Government and Treasury. Other organisations such as AFG, NAFI and Tasmanian Farmers' and Graziers' will almost certainly maintain a watch or lobby for changes. At this stage governments must ensure that residual confusion about tax is overcome through good communication of the changes made or intended.

It is currently difficult to get clear advice, let alone get permission to use a farm forest for super. It is not clear why there are so many hurdles to placing property, including farm forests, into a personal super fund, and the Commonwealth could do well to simplify the rules that restrict attempts to grow your own super.

8.8 Impediment 8. Tree-tenure: lack of clear definition of title to plantations

There is a need for tree-tenure or 'forest rights' to permit ownership of trees as distinct from the land they occupy. This would be a powerful tool in establishing clear and distinct markets for plantations and thus facilitate investment in plantation forestry from existing landholders and other parties.

Solutions: Forest rights legislation

In New Zealand forest rights have been a central component in accelerated investment in farm forestry, but in Australia the State Governments have been slow to create the opportunity for separate title to plantation trees. In theory the States have accepted the desirability of tree-tenure or forest rights legislation. Tasmania was first; Victoria is about to introduce legislation;¹⁵ WA has a restricted form where the State can have tree-tenure or forest rights, but this is not available to other parties.

There is a need for compatible, if not uniform, legislation throughout Australia to overcome confusion and allow investors to operate with consistency across State borders.

Forest rights or tree-tenure legislation may also open up numerous investment possibilities including greater use of private and public super funds to fund plantings. Tree-tenure allows farmers to 'grow their own super fund' and 'cash out' when it suits them, without selling land, thus diminishing the total farm area for the next generation.

¹⁵ It is now complete.

8.8.1 Analysis and discussion – Impediment 8

All States need to introduce legislation if they do not already have it in place, in order to meet the commitments made under the NFPS that ‘There is a need for landowners to be able to separate legal ownership of trees and the land on which they grow. For example, landowners may wish to raise money by creating an asset for later sale while retaining ownership of the land or entering into joint venture arrangements. Accordingly where it has not already occurred, State Governments will establish a sound legal basis for separating the forest asset component from the land asset for the purpose of selling timber’ (Commonwealth of Australia 1992a).

Well-trying legislation exists in New Zealand and Tasmania, with Victorian legislation passed but yet to be tested in practice. The Victorian legislation separates the assets of the land and the plantation trees, and this is noted as a caveat on the title recording that there is a forest property agreement between the landowner and a forest property owner based on ‘profits a prendre’.¹⁶

The DCNR is drafting a template agreement. The benefits of this approach are that:

- the agreement binds the parties to certain actions, relating to specified part/s of the owner’s land, and states specified access rights;
- surveying is not required by a titles office since maps, diagrams and descriptions can be made unambiguous;
- there is no stamp duty;
- the landowner does not have increased rates because of the value of a plantation, and no rates are payable by the owner of the trees;
- there is a relatively low cost for lodging an agreement;
- plantations separated from land are readily mortgagable and assignable;
- investors can establish plantations on farms without the cost of buying land;
- farmers can have trees that they do not own for shelter etc. and possibly gain income from maintenance work; or
- landowners can create a plantation asset during their working life and retain ownership for superannuation purposes without diminishing the size of the farm (Blair and Parsons 1995).

8.8.2 Progress with solutions

Tasmania simply followed New Zealand legislation and was early to have this facility. Other options were examined in Victoria before choosing the New Zealand model of ‘profit a prendre’. The Victorian legislation was passed in October 1996. Progress is under way in most States. Delays appear to be due to reinventing the legal processes in each State and in meeting the Titles Office requirements, which may differ between States. The Victorian tree-tenure legislation appears to satisfy most expectations about creating separate title to farm plantations.

There is a restrictive practice in WA where forest rights only apply to the Department of Conservation and Land Management. They need to be widened to any third party.

8.8.3 The role of government

¹⁶ ‘Profits a prendre’ is an established legal term for an agreement to give a legal right to grow and harvest trees on land owned by another party.

Providing sufficient certainty and flexibility within the property rights system for farm forests is a recognised need that governments are apparently addressing. It is a State Government issue and uniform legislation across the nation would be ideal.

8.9 Impediment 9. Poor reputation of forestry investment companies

Forestry investment companies have not had a good record in Australia. Their reputation and reliability have suffered from many ‘get rich quick’ entrepreneurs who have used forestry as a way to cream off profits from funds committed by the investor in trust for the full rotation.

Solutions: Regulation and enforcement to overcome unfair risk and uncertainty for investors

This is not a new problem. In 1977 the Australian Forest Development Institute was so concerned that it undertook to produce a Code of Practice for Forestry Investment Companies. This was done with representatives of investment companies, the Australian Forestry Council, Institute of Foresters of Australia, and the Association of Consulting Foresters of Australia. The resultant code was published in *AFG* in 1987 and sent to Corporate Affairs Departments in each State and to the ASC when it was established in 1991.

Unfortunately for the reputation of investment forestry in Australia, there seems to be a lack of will by the ASC to see that the codes are met. There is no reason why investment companies should not be a means for wood production on farms either using lease agreements or (when complete) tree-tenure or forest rights legislation. Plantation development can be undertaken as a complementary crop to a farmer’s agricultural pursuits using investment capital, efficiency of scale etc. provided by the company. Such symbiotic commercial relationships have the potential to overcome farmers’ problems with salinity, lack of shelter and erosion, along with cash flow and lack of discretionary capital, and lack of appropriate skills etc.

8.9.1 Analysis and discussion – Impediment 9

While there have been some long-standing reputable forestry investment companies in Australia, there have also been some disasters, to the detriment of the whole industry. The history of poor regulation has the effect of making all private forestry suspect.

The importance of government’s regulatory role cannot be overstated. The description (below) of attempts to introduce more stringent codes into forestry investment, and two case studies, are presented to illustrate this importance.

The Australian investment community lacks confidence in forestry and the supervision of forestry investments. This is a significant impediment to linking land, capital, and skills. With forest rights legislation coming into play, investment companies could be a sizeable source of funds for plantation development on farms and could broker this for the benefit of landowners and third-party investors. A healthy and uncorrupted investment group could provide a significant impetus to farm forestry.

8.9.2 Background to forestry investment regulation

Regulation and enforcement to overcome unfair risk and uncertainty for investors is not a new problem. In 1977 the Australian Forest Development Institute (AFDI) was so concerned that it undertook to produce a Code of Practice for forestry investment companies. Then as now, it is crucial that regulation ensures that a code is established and enforced that specifies the minimum information needed for an informed prospectus.

The Code of Practice for Afforestation Companies was produced with investment companies, the Standing Committee of Australian Forestry Council, the Institute of Foresters of Australia and the Association of Forestry Consultants of Australia. The code was published in 1983 and revised in 1987. The revised code called for additional detail to be provided on costs and expected growth rates (AFG 1987). The code was sent to all the State Corporate Affairs Departments in Australia.

In 1991, when the federal ASC was formed, the signatories to the code formally presented it to the ASC. In a meeting with the signatories, ASC senior staff outlined the new requirements compared with those of the old Corporate Affairs Departments. In summary these were, as at July 1991:

- Those inviting the public to subscribe collectively to a money-making project (prescribed interest) must prepare a prospectus.
- A prospectus should provide all the relevant information in an accessible form so that an investor is in a good position to make informed decisions. Assumptions used about future trends need to be stated and to be reasonably based to meet any legal challenges.
- Directors of promoting companies have greater responsibility to act at all times with due diligence. The ASC may now call for professional reports to verify certain segments of a prospectus. Experts providing these reports are liable only with respect to the contents of their reports.
- The ASC is not in a position to guarantee success of any undertaking. Its *modus operandi* is to make sure that the market is reliably informed and to identify those failing to do so, opening them to legal challenge.
- Issuing prospectuses has been simplified. It depends on the certainty of the directors in providing information that investors require on liabilities, profits and losses, prospects, security of funds and risks of the undertaking.
- While a prospectus is before the public, detailed inspection may be made by the ASC. The ASC has powers to issue interim orders preventing further investments from occurring in cases where it has serious concerns about a prospectus. The issuers of the prospectus have some protection from such actions through an appeals process.

The ASC supports industry groups trying to self-regulate. The Code of Practice for Forestry Investment Companies was considered to be a good example of self-regulation, as it assists the ASC in determining what information is required by intending investors. Senior staff of the ASC agreed to make the code known to all ASC commissioners and investigating officers.

After presentation of the code to the ASC, the AFDI formally wrote to the ASC asking that its officers use the code in assessing forestry proposals. The Association of Consulting Foresters

made its members aware that the ASC would be using the code because consulting foresters are likely to be called on to make professional reports for proposals and review statements on wood productivity levels for different species within Australia. The Association offered its services to the ASC in helping it to register forestry prospectuses.

AFDI had suspicions about the adequacy of communication within the ASC. These were confirmed by an officer in the Melbourne office who was responsible for forestry prospectuses. He had not heard of the code accepted by the ASC in 1991.

In March 1994 the ASC issued Policy Statement 82 Chapter 7 Part 12, 'Covenants in deeds: non-mining production schemes'. The statement refers to primary production schemes, including forestry schemes for the development of softwood and hardwood plantations. The long time involved is a special characteristic of this group of investments and increases the risks.

For the purposes of tax deduction, the investor must enter an individual contract in an attempt to have separate ownership and management of the plantation. This is possible up to the time of harvest. Nevertheless, in practice the individual's success will depend on the success of the whole scheme. When harvesting occurs, the timber sold is unlikely to be related to the specific ownership. It is usually pooled (based on year of establishment) and divided up in proportion to the areas owned by the investors.

The management company carries prime responsibility for establishing and maintaining the plantation, and its skill and diligence is crucial. The ASC states that these schemes should be as fully regulated as other prescribed interest schemes. It suggests that one additional requirement be added, and that is that the management company should offer a buy-back facility. This facility should be set out in the deeds with a formula or method of calculating the price, and it should be readily available during the life of the scheme. The trustees would have the obligation to supervise the buy-back schemes and report to the holders. The ASC believes that this would provide liquidity and also provide holders with regular information on the performance of their assets.

However, the ASC acknowledges that on-selling by the managers of assets bought back will not be easy because of the poor secondary markets and current tax laws that have actually made and compounded that problem. They will relieve the promoters of having a buy-back scheme if this is clearly stated in the prospectus.

In addition, as compensation to investors in the absence of a buy-back scheme, the ASC wants to impose discipline on the management companies. For example:

- the prospectus must have detailed forecast expenditures for the period covered by the original subscription;
- there must be annual statements of actual versus forecast expenditures and explanations for major variances;
- the trustee must forward independent expert's reports one year after the commencement and thereafter at intervals at the trustee's discretion, but not exceeding three years;
- the trustee is to advise investors of actions it has taken in the light of these expert reports;
- when the trustee forwards its periodic accounts it is obliged to report on the scheme as a commercial enterprise, and on the conduct of the management company. It should give notice of any change in prospects from that advised in the prospectus or any previous reports.

Significant changes can force the management company to convene a meeting of investors to review the performance of the management company and/or the trustee.

- the management company is at all time accountable for services provided, even though they may be performed by third parties for that management company; and
- the management company must pay the trustee all monies received from the investors and from sales.

8.9.3 Investment Case Study 1: Percheron Acceptance Corporation

One of the worst cases has been with Percheron Acceptance Corporation Pty Ltd, a company that has issued prospectuses since 1958 for plantation developments near Braidwood, NSW, and has 20,000 investors putting in \$20 million.¹⁷

When little if any dividends appeared, an action group of disappointed investors was formed in 1986 called the Pine Tree Growers Registry, which made an official complaint to the NSW Corporate Affairs Commission. The Commission found a nest of 17 companies based in Killara, Sydney.

Since then progress has been slow, but in the Australian Shareholders Association's quarterly, *Equity* (June 1996:6) there is a note:

The Australian Securities Commission has been successful in helping to obtain a Supreme Court decision ordering the Softwood Percheron Group of Companies to repay \$40 million to more than 23,000 investors. We applaud the ASC for taking a pro-active role in this case and encourage them to pursue settlements of this nature, wherever possible.

While this demonstrates the importance of diligence on the part of the regulatory agencies, the action of the regulators in this case has been painfully slow. It is yet to be determined whether the investors will achieve some recompense.

It is clear from this case that regulation of forestry investments in Australia has been inadequate. More stringent approaches are required if investor confidence is to be reinstated.

8.9.4 Investment Case Study 2: Seymour Softwoods

First-hand experience of the lack of stringent investment supervision was given to Michael Hall in 1986. Hall was asked by a Mr Stephen Gilmour, who was establishing Seymour Softwoods Pty Ltd, to write a forester's report for a prospectus in relation to two sites east of Seymour in Victoria. Hall estimated moderate growth rates for radiata pine on these sites on the basis of soil and rainfall limitations. He was not given an opportunity to see the prospectus in draft form, although he called into the registered office to do so.

When the prospectus was issued the description was as written, but the growth rates were not. Inserted instead were some heights at age 10 years, which suggested the maximum-height growths that have been achieved in Australia. When Hall complained, he was told that Seymour Softwoods had to compete in the marketplace!

Hall wrote a letter of resignation and complaint outlining this misrepresentation to the Corporate Affairs Department in Victoria, Department of Conservation, Forests and Lands, Institute of

¹⁷ Reported by Anne Lampe in the *Sydney Morning Herald*, 9 April 1988.

Foresters, Association of Consulting Foresters of Australia, and the Shire of Seymour. To his knowledge there was no follow-up.

There were to be further ramifications in 1994 that are still unresolved to the satisfaction of investors.

In March 1994 a Trustee company asked Hall to review applicants to their previous advertisement for a plantation manager to take over the maintenance of three existing plantation areas. These had been planted in the early 1990s in NSW by Seymour Softwoods, which had gone into liquidation, leaving the investors stranded. For reasons unknown, the Trustees had before this bankruptcy returned maintenance funds, which they were holding for the remaining years in the rotation, to Seymour Softwoods. The principals in Seymour Softwoods apparently fled to destinations unknown.

The Trustees clearly had a major ethical and financial problem. Hall reported on the submissions made and recommended a new manager; a meeting was to be held for the investors to discuss this report in June 1994. This meeting never occurred and nothing happened until May 1995, when Hall was overseas. The Trustees made several urgent requests for him to return for an investor's meeting. Hall refused, saying that another forester could attend and explain the issues to the investors.

Three years later, the rights to manage the plantation are still in dispute. In the meantime, no maintenance has occurred since 1993, so the investors are further penalised.

It is clear that much is wrong with our system of corporate governance and that corporate regulation needs to be tailored to the different needs of specific sectors.

8.10 Impediment 10. Landuse controls, uncertain landuse planning rules and codes of practice

Inconsistencies, irregularities and other problems with local government landuse planning and permit systems are stated to be a major problem for private growers.

- long-term investments are subjected to changing rules by local or State authorities;
- growers' fears about right to harvest and/or roading charges;
- poor legal definitions;
- history of restrictions – forestry not treated equally to other rural landuses (e.g. grazing);
- local authorities can impose onerous conditions on forestry operations;
- planning principles are not 'effects-based'.

Solutions

- (a) There are anomalies in some States where the establishment of plantations may be permitted but may not necessarily include the right to harvest. The right to establish should automatically include the right to harvest under mutually agreed codes of practice.
- (b) In Victoria, 'agroforestry' is excluded from the requirement of 'codes of practice', yet agroforestry has not been well defined in a legal sense. This should be corrected. It has created uncertainty as to where codes are required.
- (c) In Victoria, Codes of Practice are required for private forestry. Local governments have been given responsibility for vetting coupe plans etc. without any attempt at training the 'responsible officers' in the codes. Each region should have a pool of accredited personnel (consultants) who can advise both the landowner and the shire for a fee.
- (d) Introduce statewide planning amendments allowing farm forestry (as of right) on up to 20% of farm land (excluding native forest and environmentally sensitive zones). Planning permits would be required in exceptional zones or when more than 20% of the shire or catchment was under plantation.
- (e) Review rationale for codes of practice for farm forestry. According to the WAPIS, export controls for plantation-grown logs will be relaxed subject to adequate 'codes of practice' being imposed. However, nobody seems clear on how these codes will be enforced. Imagine if exports of meat, grain or cotton were to be subjected to export licence conditions of uncertain status. The anomalies of imposing restrictions on farm-produced logs deserve to be exposed. To be consistent either all or none of the primary industries should be subjected to enforceable codes. Imposing export controls on farm-grown logs supports the ideas of codes of practice for all rural industry!

8.10.1 Analysis and discussion – Impediment 10

Impressions of forestry as a heavily regulated land use impedes confidence in farm forestry.

The effect of local government regulations impeding private forestry is not uniform across Australia and varies considerably across the States, as the following examples illustrate.

South Australia. In 1992 in SA, there was an attempt by the previous government to have the commercial value of trees included in the derivation of local government rates. The attempt was finally withdrawn.

New South Wales. In December 1995 the State enacted the *Timber Plantations (Harvest Guarantee) Act 1995* (Mitchell 1996). Owners can apply to have their plantation accredited and by meeting certain conditions they will be exempted from:

- ☐ development consent to harvest if that was required by local government;
- ☐ environmental impact provisions of the *NSW Environmental Planning and Assessment Act 1979*;
- ☐ endangered flora and fauna provisions of the *NSW National Parks and Wildlife Act 1974*;
- and
- ☐ orders and instruments under various Acts that may otherwise apply to prevent or interfere with harvesting.

To be accredited under the Act, a plantation must be an existing plantation in NSW or one established in accordance with NSW planning laws and other relevant Acts. It must also satisfy the definition of plantation: land with a predominant cover of trees that have been planted – seedlings or seed – and have or are expected to form a closed canopy.

Plantation accreditation does not give exemption from other environmental legislation such as the *Clean Waters Act 1970* (NSW) and the *Soil Conservation Act 1938* (NSW). Harvesting will be regulated by a code of practice that has been developed by the Department of Urban Affairs and Planning. These codes are consistent with those being developed in other States.

Clarke and Cummine (1996) and Mott (1996) of AFG have complained that this Act does not overcome ‘sovereign risk’ as claimed. The faults were pointed out to the government before it was introduced but were ignored. The major faults are that:

- ☐ a plantation can only be accredited after it has been established, after the major investments have been made, thus providing little certainty to investors about their right to harvest;
- ☐ harvesting codes are not yet in place and when in place can be varied by regulation at any time;
- ☐ the harvesting guarantee can be revoked at any time by the Director-General with only the possibility of compensation.

Victoria. In Victoria the introduction of a statewide planning amendment (S13) provides an ‘as of right’ freedom to plant up to 40 hectares of plantation on previously cleared land in most areas of the State.

Major reforms to Victorian local government planning in the last few years have added additional confusion. ‘Timbertowns’, a local government-based organisation supporting the timber industry, has been seeking solutions.

In December 1996, the Latrobe Shire was given the task of conducting a pilot study of accrediting forestry-trained officers in the area to conduct harvesting plans on private property under the rules of the Code of Forest Practices for Timber Production. The participants had to prepare a coupe-harvesting plan for a block of native forest and then go before a panel to review their report. Those that pass will then be given a briefing to bring them up to date on changes to the code following a recent review by the CSIRO, and they will be listed, as are building inspectors, for the benefit of ratepayers.

Max Speedy (president, Gippsland Wood Producers’ Cooperative Ltd) has suggested in letters to Gippsland Councils (July 1996) a simple notification plan of plantations to local councils to assist them in their long-term planning. He suggests that the code be amended to include a requirement that growers submit a Plantation Notification Plan that would have the following:

- grower’s name and address;
- map of the proposed layout and location of plantation on the land;
- area to be planted;
- species to be planted;
- proposed road access point (normally the farm gate);
- approximate date of first harvest (normally a thinning of about 30%); and
- grower’s statement of intention to abide by the Code of Forest Practices.

Hall has suggested set of forestry definitions for planning purposes by non-forestry professionals (e.g. local government planners) in response to a Victorian review of rural planning discussion paper (Watkinson 1996).

8.10.1 Consultation outcomes

Uncertainty about the risks arising from local government and other changes in planning and regulatory regimes are a primary impediment to farm forestry. As many people involved in farm forestry are now aware, local government has the power to severely restrict the way land is used. There is widespread confusion and fear of regulatory impositions and a belief that local government should have minimal involvement with regulating farm forestry.

There is wide acceptance of the desirability of treating treecrops as long-rotation agricultural crops. There is a belief that, in principle, the status of farm plantations should be no different from other agricultural landuses but should be similarly protected from zoning and other change, taking account of the long-term nature of the crop. If local governments persist in regulating plantation forestry through statutory planning, they must establish clear definitions of forestry terms to ensure clarity and consistency in local planning.

There is much confusion between the need for codes to ensure sustainable timber production from native forests (e.g. DCFL 1989) and those that may be necessary for farm forestry. Clearfelling and regenerating native forests is sometimes confused with land-clearing and changes in landuse. This is further evidence of the need to have clearly established principles and terminology underpinning government's attempt to regulate farm forestry.

8.10.2 Progress in implementing solutions

Progress is mixed depending on the circumstances in the State. There is a powerful argument for statewide amendments to planning schemes so as to create a degree of certainty. The Tasmanian system of private timber reserves has proved workable over a number of years, and other States could emulate this model.

8.10.3 The role of governments

As State Governments have primary responsibility for planning laws, and the resultant powers executed by local authorities, it is State Governments in conjunction with local governments that have the important role of sorting out the uncertainty engendered by local government.

8.11 Impediment 11. Infrastructure and transport inefficiencies

Transport inefficiencies and resultant costs can be a crucial component of the costs of plantation-grown timber intended for export. For example, less than world-best infrastructure at ports exporting logs imposes costs on all export growers but also shelters domestic processors from competition for logs.

Solutions: Identify where transport inefficiencies can be overcome, find examples of competitive transport and handling systems at ports, then adopt

Seek out those ports that are world-class and follow their techniques and industrial relations. The New Zealand port of Tauranga comes to mind for export of pine logs. Another possibility is to use existing transport infrastructure better. Rail infrastructure is in place and grain-handling trucks are only used seasonally, and it may be possible to use these during other seasons.

8.11.1 Consultation outcomes

There is recognition that efficient transport infrastructure is important for all sectors of the Australia economy, and that it is not an issue exclusively for the timber industry to sort out.

The case study below demonstrates that efficiencies in log transport and handling necessary to establish efficient export systems can evolve with experience. Exporting demands changes in practice throughout the supply chain - from the plantations to the ports.

8.11.2 Radiata Exports Pty Ltd: a brief case study Radiata Exports Pty Ltd is an amalgamation of three separate businesses (timber exporting, stevedoring and logging contracting) established three years ago, primarily to export logs to Asia. The company has learnt to meet overseas customers' requirements by improving efficiencies in handling logs at the wharves, and by educating logging contractors in the strict specifications and standards expected by the buyers.

The company has coordinated sales of logs from Adelaide, Portland, Burnie and Geelong. These logs have largely come from thinnings, and the company sees no conflict between export and domestic requirements because the volume of radiata available is rising rapidly as plantation resources mature. Volumes exported have risen from 30,000 cubic metres in (1993/94) to approximately 200,000 cubic metres in 1996/97.

Most of the logs have been exported to Korea with some to Japan and Indonesia. The Koreans like radiata pine as a utility timber, whereas the Japanese have reservations about its use, although volumes in Japan are slowly increasing. There is relatively high usage in pallets and packing cases, with less in framing. Indonesia is a new market. The company anticipates that shipments will include an increasing volume of sawn timber in the future because costs of manufacturing in Korea are rising and the processors are looking at increasing processing closer to the plantations. Japan imports 10 million cubic metres of logs, of which 2 million are radiata pine. Korea imports about 8 million cubic metres. New Zealand supplies the majority of radiata pine to both markets.

Australian log exports contend with waterfront costs three times that experienced in New Zealand because New Zealand has developed an extremely efficient log export system. In Australia, Radiata Exports Pty Ltd is experimenting with rail transport where distances to ports exceed 200 kilometres. They have been receiving logs from VPC plantations near Warragul, in Gippsland, Victoria, and have also been taking some logs from State Forests of NSW, using ordinary open rail trucks. VIC Rail is cooperating, and eventually specialised rolling stock may be developed, but this investment requires 100,000 to 150,000 tonnes per year from any one railhead.

The export market depends on reliability in delivering contracted volumes on time, meeting specifications accurately, and bundling these in discrete units for efficient deliveries. Domestic processors have depended on ‘run of the bush’¹⁸ deliveries and paid a lower price. The export industry is forcing new skills onto traditional forest operations. For example, exporters require very precise product segregation so as to not exceed the 2% tolerance allowed for any product specifications. This is achieved by sorting at the log landings and labelling of logs and bundles.

¹⁸ ‘Run of the bush’ refers to log being loaded and carted to the processors as they come from the bush or plantation, rather than being sorted into individual classes at the log landing.

III MARKET IMPEDIMENTS

Perhaps the biggest impediment is the lag time between initial investment and final returns. How can an under-supplied sawlog market in the year 2030 send a signal to today's investors to plant more? If it could, how would we know that many others were not also responding by significant increases in plantings? This is the inherent nature of the plantation market and is unlikely to change. Like many other long-term investments, today's decisions must be guided by the best available information on world supply and demand. These figures, indicating global undersupply, generally look favourable for wood-growers. For example the WA Farm Forestry Task Force estimated global undersupply of industrial wood of 533 million cubic metres annually, by the year 2010.

8.12. Impediment 12. Lack of transparent pricing – lack of clear market signals

Lack of transparency in log-pricing and contractual sales arrangement is a frequently stated concern of both independent growers and processors. Log prices are not regularly advertised compared with agricultural commodities, and private sellers cannot follow price trends or choose to sell on clear market information. It is recognised that markets perform better with clear price signals. The lack of clear price signals indicates a series of cartels operating between major growers and major processors.

Solution: Introduce open average pricing

1. Introduce regular reporting of log prices in much the same way as prices for other rural commodities are reported, e.g. in the rural press etc.
2. Introduce commission sales agents for logs. Growers, processors and governments should support the important role of agents and brokers in securing the best price for logs. These agents could operate in much the same way and become as central a part of the rural scene as the agents that are an established part of livestock and rural real estate marketing.
3. Introduce greater tendering of lots of plantation-grown wood.
4. Press for open average pricing on a regional basis. The USA, New Zealand and South Africa have good models to follow.

8.12.1 Consultation outcomes

The desirability of transparent pricing was not contested. Apart from the possible need for the development of standard log descriptions, there is little further analysis required.

A consistent plea is for somebody to make the information available and publish it regularly.

8.13 Impediment 13. Difference in scale between small independent growers and industrial processors

Small independent growers lack bargaining power with log buyers.
Industrial wood users need large volumes and reliable supplies to schedule operations

Solution: Encourage Cooperatives

The dairy industry operates with similar scale differentials yet has established corporate or cooperative structures that meet the needs of thousands of growers and several large processors. 'In the dairy industry, cooperatives exist to maximise the combined wealth created in the farm and factory. They are different from companies in ... that they seek to maximise this total or combined wealth, rather than simply the wealth created in the manufacturing firm' (Bill Hill, chairman of Bonlac Foods Ltd 1996).

Overseas grower cooperatives have been successful at scheduling and marketing wood from many growers and at assisting growers to expand production and get higher prices by introducing competition in markets via exporting.

Wood growers' cooperatives need to be encouraged to create links with processors, to negotiate sales and to enable wood flows to be scheduled. Governments could give more support to the establishment of regional cooperatives and could channel regional planning, research and education project funds through these as a means of creating a critical mass of not only wood resources but also interest and innovation in farm forestry.

8.13.1 Consultation outcomes

The difference in scale between small independent growers and industrial processors was simply regarded as a fact of life and therefore not seen as a major impediment. Growers organising to form cooperatives is seen as an answer that would evolve over time. The Tasmanian Cooperatives have been successfully publicised, and the potential for other formal cooperatives or informal cooperation is well recognised.

Numerous options for overcoming the issues of scale and marketing smaller lots in ways that ensure that smaller growers received a fair deal were identified in the course of the consultations. Options identified included:

- ☐ Use of wood sales brokers acting as commission agents similar to the use of commission agents for livestock or real estate (e.g. the use of consulting foresters to assess log values or supervise logging).
- ☐ The sale of logs by auction, which is especially suitable for small quantities of high-value logs (e.g. sale of rainforest timbers in North Queensland).
- ☐ Use of a database to link buyers and sellers (e.g. Mary Valley Farm Forestry Cooperative)
- ☐ Cooperatives negotiating export markets (e.g. North-Western Tasmanian Tree Growers Cooperatives)
- ☐ Cooperatives investing in value adding facilities (Mary Valley Cooperative consideration of purchase of an existing sawmill).

8.14 Impediment 14. Contractors: scale of efficient operations

Contractors equipped for large-scale operations are not readily suited to farm forestry (small-scale) operations because of the highly capitalised nature of their equipment. This has left a void of suitably equipped contractors in many areas.

Solutions

Groups of growers, ideally cooperatives, should encourage the emergence of contractors equipped to handle small-scale woodlots with mobile but less capitalised machinery. It needs to be recognised that this will mean more labour-intensive methods and possibly reduced margins for both the grower and the contractor. Value-adding on site may reduce this penalty. Both parties have to be innovative to seek out the best solution for the situation.

8.14.1 Consultation outcomes

This was not regarded as a major issue as solutions will evolve in response to demand. There is a prevailing view that technological innovation and adaptation would occur in response to changing demands for both harvesting and value-adding.

Safety factors are an important issue for smaller scale harvesting operators. Awareness of both economies of scale and the safety issues amongst smaller growers and contractors seems to be the crucial issue. Most involved in the consultations were aware of the scale and safety issues.

8.15 Impediment 15. Lack of regional inventories and wood-flow plans

Wood production is spread across private, industrial and government growers. Regional inventories are rarely created that describe the full picture, of either available or surplus resources in volume by year.

Solution: Create regional inventories and wood-flow plans

Regional wood flows should be calculated on all wood resources within economic distances regardless of ownership. Full regional inventories allow for more accurate wood-flow planning. Projected surplus can be used to attract investment in additional processing and explore alternative markets, e.g. interregional or overseas exports. Industries obtain the benefit of a mix of deliveries summing to least delivered cost, improving competitiveness. In areas where numerous industries are already competing for available wood flows this competition supports competitive pricing. Regardless of degrees of competition, accurate assessments can assist in planning new plantings, undertaking joint ventures and targeting investment and marketing options.

8.15.1 Analysis and discussion – Impediment 15

There is a need to balance competition and cooperation between growers in order to achieve wood-flow planning. Lack of planning and cooperation seems to be a significant issue in some regions.

Other industries such as cotton and sugar have established systems for scheduling raw material supplies from many growers to supply large processing plants. Similar planning arrangements are quite achievable within the plantation and farm forestry industries. Formal agreements for wood-flow planning between growers may require contracts or memorandums of understanding.

8.15.2 A role for governments

Where governments are a grower they should show leadership and cooperation in attempts to improve wood-flow planning.

It is also an important role for the regional plantation committees.

8.16 Impediment 16. Long-term risk and uncertainty of markets

As well as the lack of clear, competitive markets there are numerous other factors that contribute to long-term risks and uncertainty of marketing opportunities for independent growers. The security of long-term supply contracts is one consideration.

Grower–processor joint venture contracts

For growers who do not wish to invest in farm forestry in a speculative way, joint ventures between growers and processors are a proven means of offering a greater degree of certainty to both parties. Processors have in a number of places in Australia instituted contracts that assist landowners in the establishment phase and may also guarantee eventual markets. The most sophisticated are joint venture schemes in which a legal document between the processor and the landowner sets out all the obligations each party undertakes on a defined plantation project and the profits at the end of the rotation are shared on the basis of costed inputs – labour or cash – that each party has provided and the period of those investments. These in theory can be tailored to each situation. They overcome market uncertainty to both the grower and the processor, with both making an investment bound by the contract. Informed growers or their advisers are in a better position to negotiate contracts and design plantations to suit their requirements and farm plans etc. (see section on farm forestry culture).

8.16.1 Analysis and discussion – Impediment 16

Joint venture arrangements were not considered to be an impediment of any magnitude. There is little to report other than the importance of establishing fair conditions for dealing with the risk generated by processors changing their investments. Our conclusions are outlined in the section below on risk-sharing under Impediment 18.

8.17 Impediment 17. Industrial forestry companies changing their investments

Often processors have changing short-term development horizons in order to maximise the returns to investors. Unfortunately these decisions can be undertaken without considering the expectations of existing growers in the region, who can even have received encouragement to invest from that same processor in the first place. In this sense the board of directors of major forestry companies may have to decide between the interest of growers (previously encouraged to invest) or those of shareholders (who clearly have invested).

An example of this situation is when Australian Paper Manufacturers Ltd (now AMCOR) was convinced that Australia should be exporting pine kraft pulp. In *Business Review Weekly* (31/10/81) the managing director, Stan Wallis, was quoted as saying that ‘we have a bright future for exports of kraft pulp. Many developing countries are developing their own paper industries and need one basic material to keep their machines going – kraft pulp. What Australia and New Zealand have got is economically exploitable reserves of softwood. Our real advantage is in the cost of production. It costs us around \$100 a tonne to make softwood (kraft) pulp. In Japan and most other countries it costs \$200 a tonne. If we had surplus kraft pulp at the moment we could

sell it at the drop of a hat.’ APM’s subsidiary company, APM Forests Pty Ltd, geared up (planted more) for this planned expansion and encouraged private growers to do likewise with joint marketing agreements.

These plantations are now maturing, while the facilities for manufacture have not been built, with obvious embarrassment within the company and the wider community. There has never been a forthright explanation by the company to its agreement holders. The company says that it will honour those undertakings, but in its own time. ‘Its own time’ appears to be well past when thinning is a silvicultural necessity (for plantation health and future sawlog yields), both in its own plantations and those of its agreement holders. The excess wood should be seen as an asset, not an embarrassment.

Solutions

Regional discussions – informal or formally through cooperatives – are required to have both the primary side and the secondary side investing intelligently for mutual benefit. There needs to be good information to recognise surpluses and shortfalls through time so that genuine surpluses for a region can be advertised for new products or exports and shortfalls can be filled by new investors with guaranteed market expectations (see also section on wood-flow planning above).

A possibility for future contract growers is to ensure that there is a clause in their contracts that specifies that failure to thin or harvest by a given date would result in rights to compensation by way of cash or shares to the value forgone. This is similar to penalty clauses inserted in many commercial contracts. Tighter contracts would provide greater certainty to growers, guaranteeing that the companies share the future risks. They would also allow grower expenditure on non-commercial thinnings and ensure that the company recognises its responsibility to contracted growers. For the companies, such contracts would make them consider these costs as a liability when changing their investments.

8.17.1 Analysis and discussion – Impediment 17

This is a primary impediment and one that has generated a lack of confidence from growers. It is significant in some regions now and could be potentially significant in newer joint venture regions once harvesting and marketing begins if there are problems with securing market access. Perceptions of the problem are sufficiently accurate that processors should consider action to maintain growers’ faith in their plans and ensure that there is a fair way of sharing risk in their supply contracts.

It is only realistic to expect that processors’ supply requirements will change over the time-frames involved in farm forestry. Tighter contracts are required which ensure that risk is shared fairly by all parties. The nature and degree of the risk - and who bears the respective shares of the various risks - needs to be explicitly identified within supply or joint venture contracts. Ensuring adequate risk sharing is particularly important given the rate of expansion and the scale of more recent joint venture initiatives, including some funded by governments.

There are numerous examples where governments or industry have promoted plantation expansions but have failed to secure markets for the resultant production. For example, in the Adelaide Hills the Woods and Forest Department encouraged plantations by giving away enough free pine trees to plant about one acre (thus explaining the number of small pine plots in the hills

region). Few landholders took the advice to plant more extensively and the result now is a highly dispersed, mostly non-economic and poorly managed resource. Furthermore the State's plantations provide an ample supply to one large processor in the region and efforts to secure on going access to export markets have proved unsuccessful.

When individual growers choose to grow commodity crops for which there are sizeable markets they must recognise that there is also sizeable competition from corporate and government growers. When there is strong demand markets may take all that growers can supply, however if and when there are over supplies small growers may not be able to compete with the larger suppliers. Certainty of markets through guaranteed supply contracts, with compensation clauses are particularly relevant in regions where individual processors have market dominance and where there is no export capacity as a vent for oversupply.

8.17.1 A role for governments

While the role of government is vital in providing a foundation for investment certainty for both growers and processors, the fundamental relationships are between prospective supplier and processors/exporters, in terms of how explicitly any agreement address the risk resulting from changing demand caused by the processors' or exporters' decisions.

The Commonwealth and/or the AFG could create 'model contracts' that attempt to explicitly state the relative risks and how these will be shared, and in particular identify how growers will be treated in the case of changing investment or demand scenarios. Processors, exporters and growers should consider if existing supply contracts require redrafting to share the risks more equitably between the parties.

Problems for growers are increased by the way processors play off one State Government against another when they seek areas for major expansions such as a new pulp mill. Seldom is there an orderly decision to select an area, establish a forest resource and then build a plant. The positioning of a plant becomes the lure to get concessions for timber, water, power, infrastructure and lower environmental standards from State Governments. Once the deal is made there is a scramble to obtain sufficient timber resources on time.

The private grower will rarely be consulted under these circumstances. At best private grower cooperatives will be consulted by the State growers to overcome supply shortfalls. The government plan to triple the plantation resource by the year 2020 using farm land as the principal base for expansion makes it very important that there are more orderly and logical steps in the planning processes, rather than political and commercial opportunism.

While a degree of competition between States and regions can achieve healthy competition, more often it is used to play off the States for the sort of concessions outlined above. The playing off of State Governments in order to receive favourable treatment has been a problem for decades and has important implications for the entire economy. The nature and magnitude of the problem is recognised in the recent Industry Commission Inquiry Report into State Assistance (1996).

8.18 Impediment 18. Lack of markets for environmental services and lack of cost-sharing frameworks

At present there is no established way of the public paying (investing) in the non-wood, non-farm production benefits of farm forestry. For example, at present there is no framework for local government and irrigation water users to invest in plantings that have both some commercial and some environmental benefits, such as wood production, farm shelter and the remediation of downstream problems in an extensive catchment or the reduction of salt in streams.

Solution: cost-sharing frameworks that can pay for public benefits

The present failure to pay for public or environmental benefits of farm forests could be overcome by establishing effective cost-sharing frameworks. Commercial private planting should proceed on the basis of commercial investment decisions, but where clear public benefits will result from increased farm forestry plantings, these should be paid for by government to the extent of the public benefit, e.g. investment could be encouraged into salinity recharge areas by payment for the public benefits achieved.

Although many of the cost-sharing issues requiring clarification relate to local, regional or State scales of operation, the Commonwealth Government should take the lead role in establishing adequate and effective cost-sharing frameworks while it remains involved in natural resources management through funding landcare and farm forestry programs.

Formal arrangements for cost-sharing should be developed before heaps more money is thrown at resource management problems. Formal cost-sharing arrangements would enable public and private interests to participate and State, local and national involvement. These ideas are more fully detailed in the recent MDBC Consultants report 'Cost Sharing Frameworks for On Ground Works' by AACM International.

8.18.1 Analysis and discussion – Impediment 18

The establishment of a tradeable system for greenhouse gas credits—'carbon credits', would fit neatly within a cost-sharing system. Carbon credits would change the economics of many farm forests and should be actively pursued as a potential source of funding.

For land or water protection there will be a need to tailor the incentive or cost-sharing packages to the particular circumstances encountered at a land unit or catchment scale. The level of detail required is a potential problem. Good science will be needed to establish the technical basis for cost-sharing arrangements, as in most regions there is still uncertainty about the nature of the biophysical processes. For example, there is still great uncertainty about the effectiveness of tree plantings in mitigating salinity in many catchments.

8.18.2 Consultation outcomes

There is a widespread perception that the effectiveness of money spent on sustainable landuse programs could be enhanced by creating opportunities for formalised cost-sharing in which governments are purchasers of public good outcomes.

Cost sharing could contribute to the significant expansion of farm forestry activities in ways which generate both public and private benefits.

Lack of cost sharing systems is a primary impediment, especially for the extension of farm forestry into regions where production benefits will not solely drive farm forestry development.

Much of the motivation for farm forestry is its capacity to achieve a combination of public and private benefit. Clarifying ways for sharing private and public costs and benefits should be given a high priority.

Some challenge the basis of the argument, suggesting that all landuse decisions should be market-driven, and the costs and consequence of landuse decisions should be internalised in the trading or capital values of the enterprises involved. If we take this argument to its logical conclusion there should be no landcare or similar programs, no extension support or publicly funded R&D for land using industries.

8.18.3 progress with solutions

There seems to be limited progress in establishing formal cost sharing arrangements. There is rapidly increasing understanding of the concepts involved and some innovative cost-sharing pilots should be undertaken and the results documented.

The work by AACM (1996b) for the Murray–Darling Basin Community Advisory Committee represents an orderly assessment, but governments are yet to formally adopt its proposed cost-sharing framework. However, numerous complementary processes are occurring that may result in farm forestry cost-sharing contracts. In several States a catchment levy system has been introduced that will raise a pool of funds that could be invested in farm forestry applications if these generate sound resource management outcomes. The Natural Heritage Trust will also be providing substantial investments in vegetation management and farm forestry.

The formulation of effective cost-sharing arrangements could be instrumental in channelling these various sources of investment into farm forestry developments.

8.18.4 A role for governments

Governments collectively have a critical role in establishing, testing and participating in cost-sharing arrangements. Farm forestry could be a logical focus for cost-sharing in many areas of Australia. Cost-sharing for farm forestry has not been formally endorsed by governments, yet it would be an important means of accelerating the adoption of farm forestry and generating positive environmental outcomes from public investment.

The integration of forestry and other natural resource management policy has yet to occur fully. Specific grant schemes have operated in the past to promote rural tree-planting for various reasons, but this has rarely been applied to purchasing environmental gains.

There appears to have been a failure to fully recognise the opportunities commercial farm forestry presents to address natural resource issues. With the exception of WA, no State appears to be using explicit incentive packages to get farm forestry development to occur where it can generate the most good from altering catchment processes. There is a need to move from exploratory and educational activities to sizeable whole-of-landscape plantings which integrate biodiversity, landscape or catchment management, and production goals. There are numerous regions where there are already community and landholder recognition of farm forestry opportunities combined with important resource management problems to be addressed:

- inland slopes of the Murray–Darling Basin;
- tropical coast and Atherton tablelands in north Queensland;
- south-east Queensland including the Mary Valley;
- Northern Rivers and mid-north coast of NSW;
- north-eastern Victoria;
- Gippsland lakes catchment and western Victoria;
- Adelaide Hills; and
- south-western WA.

Establishing a fair and rational approach to selection of regions and issues which receive public investment will be crucial. Questions continually arise about the decision-making framework used by governments to choose which regions or resource management issues public funds are invested in. It seems that the current approach is largely reactive or problem-driven and depends on a region or issue getting sufficient profile, rather than being any rational or orderly process.

Establishing the basis for comparing the relative values of such investments across Australia and across the range of issues is a major challenge that governments must address. Numerous projects, separate programs and *ad hoc* policies are proving insufficient. Careful consideration is needed to ensure that the types of cost-sharing systems that are established do not become another factor distorting landuse or forestry decisions.

The amount of detail required and the tailoring to regional specifications mean that blunt instruments such as taxation-based incentives may not be as effective as regionally specific cost-sharing contracts. Due consideration must be given to avoiding distortionary effects, and care needs to be taken that governments would not be paying for activities which would occur without incentives or cost-sharing. Full consideration of the most effective policy instruments is required.

Creative thinking is required to apply detail to cost-sharing arrangements. Many possible variations of incentives, cost-sharing and benefit or profit-sharing could be used. Regional characteristics will need to form the basis of cost-sharing arrangements.

State log-pricing and allocation policies have a direct bearing on the confidence, motivation and investment considerations of private growers. Therefore it would be inappropriate to embark on cost-sharing contracts with private growers without also implementing reforms which lead to market-based pricing of State or joint-venture-grown logs.

Using proceeds from the sale of State-owned plantations for reinvestment in multi-benefit plantations needs serious investigation. It would be possible to privatise the existing softwood plantation estate and reinvest some of the capital in new multi-purpose plantings intended to achieve wood production plus environmental services (e.g. a major expansion of plantations for catchment protection goals – reducing salinisation in the Murray Darling Basin, or protecting water quality in streams flowing to the Great Barrier Reef).

Redistribution of the capital used in Australia's plantation sector on this scale would need to be carefully scrutinised. In principle, however, it is little different from selling off Telstra to raise funds to invest in environmental repair. With appropriate cost-sharing contracts, there is no reason why public investment could not purchase the public benefits to be achieved. A reinvestment of this nature would release State capital from land and existing plantation resources and transfer it into new ventures for the generation of long-term wealth, as well as environmental outcomes.

While some States have been investigating or proceeding with selling off their plantation estates or the rights to harvest, as far as we are aware there have not been direct links made to using this capital for reinvestment in new-style plantations or regenerated farm forests.

8.19 Impediment 19. Difficulties in attracting external investment and lack of suitable accounting standards

One would think that long-term crops like farm forests which appreciate in value towards a large final payout should be a natural investment for the superannuation industry. In Australia, however, there is apparently minimal interest in farm forestry or plantation investment by super funds.

According to a study undertaken by K. Shiels, there never seems to have been much interest, despite extensive periods in the late 1960s and the 1970s when well-managed plantation forestry out-performed typical super fund investments of Commonwealth bonds, shares or real estate.

Mr Shiels was a former economic and investment adviser to the Commonwealth Bank. He came to these conclusions when he made a study of superannuation and forestry investments (Shiels 1982). He cited only one case of Australian super funds making substantial direct investment in afforestation (as opposed to holding shares in companies who have plantations). In the early 1970s the Wales Retirement Fund (Bank of NSW Staff Superannuation, now Westpac) invested in Timberlands Forests Pty Ltd. Timberlands has grown into a sizeable company with approximately 24 000 hectares of pine plantations, but no longer has the backing of official super funds. Its funding now comes from investors (mainly Sydney professionals) who invest in their own right for super purposes on a yearly prospectus. Shiels used Timberlands to compare the performance of plantations against the typical investments mentioned above.

Shiels also went to England to study the situation there. He concluded that the reason super funds were major investors in forestry there were:

- a conviction that investments in plantation forestry were likely to increase faster than inflation, which is vital to long-term investments (timber prices have in fact grown faster than inflation);
- forecasts of growing world timber shortages from authoritative organisations (FAO, EEC etc.);
- knowledge that the energy costs of timber substitutes (aluminium, steel, concrete, plastics) adversely affected their likely competitive advantage over wood products;
- negative real yields obtained from shares through the 1970s.

English super funds are major investors in plantation forestry in both Scotland and the USA. Why are Australian funds not interested in investing here?

It appears that long-term crops with no recognisable cash flow and doubtful status in terms of quarterly or half-yearly capital gains are not attractive to the managers of listed funds. These funds compete on a quarterly basis and need to demonstrate the competitive nature of their earnings. They may well invest in shares of major forestry companies but are unlikely at present to invest directly in afforestation holdings. It may only be a case of changing the accounting standards to allow the regular revaluation of standing trees to be recognised for funds to invest in plantation forestry.

Private super schemes are another likely source of investment funds, but at present the lack of tree-tenure legislation which clearly defines the legal right to the trees would prevent individuals from investing in farm forests directly. Further, it seems that the Superannuation Industry (Supervision) Act currently restricts the forms of investment that private super fund managers can engage in. While it seems they can invest in woodlots/plantations via prospectus, it is doubtful whether private super could be a source of investment for farm forestry plantations (with or without tree-tenure).

Solutions

1. Review and consider amendments to the super Act to permit farm forests secured by tree-tenure rights to be admissible as part of private super. After all they are not necessarily any less secure than many shares in listed companies, or those plantations developed under management companies and invested in by prospectus. At the time of writing further advice is being sought from specialists in the field.
2. As above but with focus on farmers' private super in the form of farm forests on their own properties.
3. The solution to the question of revaluation of standing timber seems to lie in the adoption of an accounting standard which would provide a fair assessment of the increased value of trees as they mature. Changes to the accounting standard which would be used for revaluing standing timber assets is still under consideration, but it should be resolved clearly in order to satisfy the needs of private and public super fund managers, shareholders in afforestation companies etc.

The Australian Accounting Research Foundation (Caulfield, Melbourne) has reviewed forestry and other similar industries in its discussion paper 'Accounting for Self Generating and Regenerating Assets' (Roberts, Staunton and Hagan 1995).

This paper shows that some but not all forestry companies in Australia and New Zealand take account of annual accretions of growing plantation stock and include these in their annual accounts as appreciating assets, but there is no common standard. The companies that do this are all major listed companies: North Ltd, CSR Ltd and Auspine Ltd. The State forest services use different approaches in handling their accounting of appreciating timber assets.

Roberts, Staunton and Hagan recommend that current market value be the standard where possible. They define current market value as ‘the estimated amount that an asset should exchange on the date of the valuation between a willing buyer and a willing seller at arms length transaction after proper marketing, where the parties had each acted knowledgeably and without compulsion’.

They recommend a surrogate approach where young trees are involved using Net Present Value calculations. They also mention the use of composite valuation models in which costs are compounded to age 5 and returns discounted from rotation age and mathematically smoothed to achieve a valuation for each age class.

8.19.1 Analysis and discussion – Impediment 19

There is massive growth in funds managed for superannuation purposes in Australia. Of the estimated \$26 billion per year very little is invested in forestry (Parsons 1996). In other countries forestry plays a much larger role in managed superannuation portfolios. Better communication between the financial industry and plantation forestry industries is required in order to understand why this is so.

The Australian financial sector is well aware of the number of failed forestry investment schemes and appears reluctant to invest in a sector with this reputation. Lack of enthusiasm for forestry is possibly also a result of another bias. A source in the New Zealand financial sector suggested that the Australians were so used to making money out of digging up what’s under the ground (minerals) that they were ignoring plantation opportunities.

There are also significant scale issues involved, with major investors looking for major investments, not small-scale farm forestry. Private super schemes are more able to be matched to farm-scale plantation projects than institutional investments.

8.19.2 Consultation outcomes

There is increasing recognition of the need to link up capital, land and skills if farm forestry is to succeed. But further work is required to achieve the range of investment options which can satisfy the various potential investors and their respective needs for flexibility, returns and security.

The consequences of attracting large external investments to plantations development may create similar conditions to the opposition to plantation expansion in northern Victoria in the late 1980s. Many lessons could also be learnt from the regions of south-western WA at present experiencing rapid plantation expansion.

8.19.3 Progress in implementing solutions

Establishing simpler pathways for investments to flow into farm forestry will have national implications. One component of the investment train which may be missing in Australia is the afforestation companies. It seems that the major investors will not invest in the establishment phase but would rather buy established plantation. Therefore 'risk capital' backing afforestation practitioners is needed to bring plantations into existence before being sold on to institutional investors.

Major super funds around the world are looking to have a small percentage of their portfolios in forestry as part of a diversified portfolio. With the scale of the funds in the Northern Hemisphere (Europe, USA etc.) this represents a huge potential source of forestry investment in Australia which could move into either acquisition of existing resources or expansion. Providing the right climate for investment will be important.

8.19.4 A role for governments

Governments will play a crucial role in providing the conditions necessary for investment confidence. A thorough review of the relationship between private super for farm forestry is required. Means of facilitating institutional investment is also needed.

While forestry and superannuation investment have much in common, being long-term, governments should not attempt to direct how fund managers invest.

Opinion in the finance industry is probably unnecessarily biased against forestry because of a history of poorly conceived or regulated investments. This may prove to be a major stumbling block for the expansion plans outlined in successive government policies.

If governments wish to attract the necessary investment it will be necessary to undertake a range of reforms (as described elsewhere) to demonstrate to investors that Australia is serious about establishing fair conditions for private sector forestry.

8.20 Impediment 20. Costs of insurance for farm forests

Insurance, even with the AFG scheme, is a very significant cost for maturing plantation assets and is the most expensive cost an individual grower will have over the length of a rotation.

Cost of insurance of plantations is not strictly related to risk on an actuarial basis for the plantation sector, let alone significant variations for different locations within the sector (e.g. increased or decreased fire risk because of climate and location). The premiums negotiated each year relate more to the current capacities of the world's institutions to provide cover, and this takes in all the disasters like earthquakes, shipping losses and so on.

Current premiums are about 1% of valuation per year for individual growers. On the other hand industrial forestry companies can achieve much lower rates for plantations by adding their forest assets to their much bigger industrial assets. This is a commercial reality not available to individual growers, even within a group scheme.

Government-owned plantations are not insured as the government accepts that risk to itself. When governments 'privatise', there may be a need to insure. The current corporate entities like

Victorian Plantations Corporation, which are halfway to being private, do not insure because of their large, well-dispersed spread of risk.

While it might appear that the big industrial companies and the government services may have cost advantages over the individual growers because of their inability to spread their risk, the big growers have higher overheads because of their investments in fire suppression equipment and in the ongoing staffing required, which the private growers avoid. The small growers close to the large plantation resources of companies and State services have the benefits of this infrastructure as fires are fought no matter the size of the fire and ownership of the land.

Solution

Bargaining power for individuals will improve through aggregation in organisations like AFG or through cooperatives or both. AFG has been looking at ‘captive’ insurance in which members themselves would provide mutual protection, and the cost theoretically would relate to the specific forestry risk. It also poses some risk in the event of a catastrophic fire season.

While insurance premiums are fixed year by year on total market capacity rather than calculated from actuarial experience sector by sector, there does not appear to be a solution to the high costs.

Individual growers see their premiums being much higher than those for large companies, but they also have to realise that they are not contributing to the fire-fighting capacity to anywhere near the same extent as their large neighbours.

8.20.1 Analysis and discussion – Impediment 20

Many people think that farm forestry plantations will not often be insured. However, where farm forestry involves superannuation, joint-venture partners, external investors or other than owner-operators, insurance will be crucial.

While insurance may simply be an inevitable cost of doing business, the risk factors in farm forestry investments need to be made clear in promotional materials, and options for buying insurance cover should be included.

The degree of fire risk varies across different regions, and this needs to be considered in both investment and insurance decisions.

Greater bargaining power will come with increasing numbers of growers using insurance. If the States proceed with the privatisation of their plantations, demand may increase. Demand will also rise with individuals coming into the industry for superannuation. If farm forestry is officially recognised as a super option, insurance will become mandatory in self-managed schemes.

8.20.2 Consultation outcomes

Most people attending the workshops ranked insurance costs as a minor impediment. Many people do not appear to have considered the risk management side of farm forestry investments.

Those involved in private plantation production recognise it as a cost which significantly affects returns on investment over the life of a rotation. It is a direct cost for growers and one that rises exponentially with plantation maturity.

8.20.3 A role for governments

While the relationship between growers and insurers is essentially a private sector one, governments should make the links between superannuation and forestry clearer and explicitly state the conditions in which insurance is mandatory.

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APPENDIX 1 Discussion Paper

"Creating a viable farm forestry industry in Australia -

What will it take?"

discussion paper

Written by Jason Alexandra and Michael Hall
as part of the project "Policy Reforms for Farm Forestry -Post NPAC"
funded by the Joint Venture Agroforestry Program
of the Rural Industries Research and Development Corporation,
the Land and Water Resources R&D Corporation and the
Forest and Wood Products R&D Corporation.

Feedback wanted

This paper is intended for discussion, feed back is welcome, please direct written or verbal comments to Jason Alexandra at the address below. Please feel free to pass on, copy or distribute to any body who has an interest in private or farm forestry in this country

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Definitions.

Agroforestry - the internationally recognised term for the integration of agricultural and forestry systems. This term applies to the full suite of combinations of woody vegetation (tree etc) and farming systems. Agroforestry therefore includes plantings for forestry production when these are combined with agricultural production, tree planting for commercial farming, eg. fodder trees, and "landcare" type plantings aimed at creating more sustainable farming systems.

Farm forestry - commercially motivated tree growing undertaken in conjunction with farming activities. It assumes an intention to produce a commercial product, usually wood, as one of the outcomes of the farm forestry activity. While we recognise that there are many other reasons for trees on farms or in the landscape we do not intend to cover these in this project. There are also many significant issues in relation to the management of the 11 million hectares of privately owned native forests, however these issues were excluded from the project brief. Nonetheless many of the issues identified are relevant to private native forest management. The project brief also excludes consideration of commercial plantations developed over extensive areas which are not integrated into agricultural systems.

Private forestry - the entirety of private sector forestry in Australia, undertaken by large companies, small investors or individual landholders. As many of the policy issues relating to farm forestry are issues for all private forestry we frequently mention private forestry in this paper. Farm forestry is a subset of private forestry. Private forestry is quite distinct from public sector forestry by virtue of ownership, but in other respects such as silviculture may be similar.

Viable farm forestry industry - one which is self sustaining economically, free to compete in markets for forestry products and services without being disadvantaged by the twin "historical accidents" of the state being the major forest and plantation owner, and the origins of modern Australian agriculture arising from a pastoral or annual crops traditions. A viable farm forestry industry would be responsive to market forces and opportunities, and make a significant contribution to both the agricultural and forests sectors, without long term dependence on government assistance. Climatic and other natural limitations will limit the development of a farm forestry industries will be restricted to suitable regions.

This is a discussion paper

As a starting point for discussion in this paper we have outlined our views on what it will take to create a viable farm forest industry. We have attempted to identify the key impediments and provided brief recommendations of how to overcome these.

We are now seeking advice from those involved - farmers, farm foresters and agricultural and forestry professional. We want to know your views on what's necessary. Are there are important issues we have failed to identify? Are our recommendations adequate? Please give us your views.

What will it take to create a viable, self supporting farm forestry industry in Australia?

Despite greater recognition of farm forestry as a potentially important landuse and timber supply option, there is still much to be done before it could realistically be considered anything other than of marginal significance to Australia's agricultural and timber industries. Much has been written of the potential of benefits of farm forestry, but what needs to be done to make "it happen?"

In this project we are researching "What will it take to create a viable, self supporting plantation based, farm forestry industry in Australia?"

We aim to get an accurate assessment of the current policy impediments restricting farm forestry development. We aim to determine to what extent these are real or perceived impediments and to identify not only what is needed to overcome them but also "who needs to do what."

Through this project we are seeking the advice of those involved in farm forestry on several important questions:-

- What needs to happen for Australia to realise the potential benefits of widespread adoption of farm forestry? Who needs to do what?
- What is the role of governments in the relation to private forestry? What should it be?
- Are governments adopting a coherent "reform agenda" which supports the growth of private forestry? And why have so many of the recommendations of previous inquiries into forestry failed to be implemented?
- Where are we at with establishing the fair conditions for private growers? Does the states' role as forest regulator and forest seller create conflicts?
- Can investors both private and institutional invest in farm forestry with any confidence?
- Will plantings increase and will these be guided by better knowledge and planning systems?
- What will growers and industry need to do? Will adjustments to commercial arrangements be necessary?
- What is the role of local government in planning and regulating farm forestry?

Is Australia Missing Out on Farm Forestry Opportunities and Why?

"The National Forest Policy Statement" was signed by the Prime Minister and the Premiers in December 1992. It attempted to create a comprehensive and nationally agreed approach to forestry issues. The goals for plantations (including farm forestry) agreed to within National Forest Policy Statement were:

- to expand Australia's commercial plantations to provide commercially viable, high quality wood resources for industry;
- to increase plantings to rehabilitate cleared agricultural land and as a means of improving water quality and meeting other environmental and economic objectives.

Farm forestry and plantations were identified as a way of improving the sustainability of agriculture through salinity control, land protection and shelter as well as a way of increasing timber stocks, replacing imports and even earning export dollars.

Why is there such a shortfall in the expectations of the 1992 National Forest Policy Statement compared with what is actually occurring three years later?

While there is widespread interest in farm forestry, the development of farm forests or private plantations by individuals in Australia seems to be retarded. While it is occurring in some regions, when compared with New Zealand, Australian farm forestry lacks vigour.

In New Zealand current planting rates are estimated at over 70,900 hectares per annum. Individuals (farmers and private investors) are planting 75% of this, and companies the remainder. In Australia current planting are estimated at about 16,000 ha of new eucalypt and 10,000 ha of new pines. Most of these planting are by companies and state forest services continuing historical patterns of ownership. The total plantation estate is estimated at about 1.1 million hectares, mostly owned by governments and large companies. Farm forests are estimated to be less than 5% of the total area of Australia plantation estate.

"Why does Australian private forestry not have the over-all vigour and optimism seen in New Zealand? What policy reforms adopted there have been influential, and should they be introduced here?"

Despite considerable differences in geology, climate etc Australia has the following factors which should be conducive to farm forestry developments;

- large areas of suitable land - over 18 million hectares are considered suitable and of this over 5 million hectares are regarded as highly suitable,
- access to markets both domestic and export,
- education, experience and expertise in agriculture and forestry
- dynamic business, forestry and agricultural sectors,
- and many large scale land and water degradation problems which require revegetation - (commercially motivated farm forestry can contribute in certain regions).

Policy Context -

There has been almost constant conflict over forest management in Australia during the last 20 years. Most of this has focused on management of native forests but plantation policies and programs have not been without controversy.

Between 1975 to 1993, there were many inquiries into forestry. One of the most comprehensive was the Resource Assessment Commission's "Forest and Timber Industry" which reported in 1992. Others national inquiries included the National Plantation Advisory Committee; a Working Group on Ecological Sustainable Development and the Industry Commission's Inquiry into "Adding Further Value to Australia's Forest Products" in 1993.

Much of the National Forest Policy Statement was based on advice from these inquiries. It was assumed that each region in Australia would have differing mixtures of desired "outcomes" as a result of the National Forest Policy Statement. Some of the expected general outcomes included better recognition of those forests and forest values which needed to be conserved, less conflict over native forest, greater certainty for industry and accelerated investment in plantations and farm forestry. However, following the NFPS conflicts over native forest management seem to have intensified, and despite the obvious potential, and the increased Commonwealth Government funding to farm forestry programs, investment in farm and plantation forestry seemed little changed.

In 1995 the Commonwealth developed the Wood and Paper Industry Strategy which further committed the Commonwealth to encouraging farm and plantation forestry. The National Farm Forestry Program was expanded and the Commonwealth made a commitment to removing those impediments to plantation and farm forestry over which it has control. These include taxation treatment of plantations and export controls on plantation grown timber. In addition the Strategy recognised that state and local governments have primary responsibility for forestry and landuse decisions. In the Strategy the Commonwealth indicated its willingness to work cooperatively with community, industry and other governments to overcome impediments beyond its direct control, such as harvesting rights, codes of practice and planning and landuse controls.

This project is not a direct result of the Wood and Paper Industry Strategy. This work is funded by the Joint Agroforestry Program (RIRDC, LWRRDC and FWPRDC) but is an important opportunity to refine the proposed reforms. Through this project we hope to develop the detailed advice on how to effectively overcome these and other impediments. It is an opportunity for industry, community and government representatives to make further clear statements on what is expected if the opportunities presented by a dynamic farm forestry sector are to be realised. Ultimately it is up to governments and industry to determine to what extent this advice is acted on.

What is currently going on in the way of farm forestry plantings

An important underlying assumption in this work is that Australia is missing out on significant farm forestry opportunities. But how do we know that current interest in farm forestry is not being converted in new well informed plantings throughout the suitable agricultural regions. At this stage we don't and if you believe the present upsurge in interest is being converted to plantings which will redress land and water degradation and provide significant future wood flows please let us know.

We believe that current commercial plantings can be categorised as being motivated in the following ways:-

- commercially driven industrial plantations -planted, owned and managed by the wood using industries;
- government sponsored industrial expansion plantings (aiming to create minimum resource areas to attract/support industry);
- joint venture plantings with landholders and industry;
- tax driven or investment planting, where investors gain tax benefits from investing this year in plantings aimed to generate future income. These usually involve management companies undertaking the work and subsequent management;
- grant driven demonstration and landcare plantings, including those primarily focused on achieving environmental outcomes but which may yield future timber;
- "experimental" plantings undertaken by interested farmers;
- "design and diagnosis" driven planting incorporated into farm planning and based on a good understanding of integrating forestry and agricultural systems in both space and time.

This view is supported by ABARE's findings of a surveyed of farmers in high rainfall zones. This survey found that of those farmers investing in tree planting most were motivated by shade and shelter goals (53%), followed by land rehabilitation and protection (23%) and conservation (16%). Only 3% nominated commercial wood production as their reason for planting trees on their farms.

Knowledge gaps and the rarity of "diagnosis and design driven plantings"

What we believe are rare are the "diagnosis and design driven plantings" - those which are based on an informed approach to achieving the complementary benefits of combining agricultural and forestry on one piece of land. Combination will vary greatly, given that there are many agricultural and silvicultural systems, species choices, differing farm and land management objectives.

Therefore the potential patterns and possible combinations are numerous. Given the potentially long life of the trees, the implications of not understanding the farm and land management impacts are significant. Lifting the design skills of farmers and farm forester (or their advisers) so that farm forestry options can be incorporated into whole farm planning and catchment planning will be critical component of any national efforts to accelerate farm forestry adoption. (Reid 1996)

Given the time it takes trees to mature we cannot afford to have a generation of ad hoc experimentation. Using contemporary knowledge to predict likely outcomes will be paramount. Willingly adopting a "best bet" or informed guess approach to predicting these outcomes will enable plantings to proceed within the real world constraints of imperfect knowledge. Bringing together those who know and those who need to know will play a crucial role in establishing the numerous "best bets". These of course will vary due to the many variables involved - including the land holder's aspirations, site and climatic constraints etc.

Overcoming the "knowledge " impediments to well informed planting will only address some of the many impediments to establishing the dynamic "Sylvi - culture" required if we are to achieve a viable farm forestry industry in Australia.

Major impediments to farm forestry

In the following pages important policy impediments and opportunities for overcoming these are described briefly. To do this we have drawn from our own experience and reviewed the reports and policy statements arising from the numerous inquiries.

We would like you to look at each recommendation individually and in total, and ask the following questions,

- "Are these an accurate description of the current impediments?"
- "Would implementing the recommendations be enough to create the conditions for a viable, self sustaining farm/private forestry sector?"
- "What else needs to be done?" and
- "Where changes are in process, to what extent are you confident that they will achieve there intended outcome?"

In the coming months we will be holding workshops in key parts of Australia where these issues will be thrashed out in greater detail.

"to the extent that logs are underpriced, the activities of the forests products industries are subsidised by taxpayers. Underpricing by forest agencies also depresses the prices obtainable by private wood growers and, hence, discourages private sector investment in plantations and agroforestry" Industry Commission, 1993.

POLICIES TO OVERCOME THE LACK OF A FARM FORESTRY CULTURE

Australia's lack of a farm forestry culture is a major impediment. The culture is the sum total of the knowledge, beliefs, experience and skills throughout the community. We believe the farm forestry culture is missing throughout most farming communities, the forest industries, agricultural and forestry professional and relevant state agencies.

The question of what drives what is valid - is the lack of skills and culture a result of distorted markets? The lack of visible markets for farm forestry products and rarity of existing farm forestry

operations demonstrating commercial returns not only impedes the development of skills and "culture" but also allows people to draw conclusion about the uneconomic nature of farm forestry. The lack of skills and experience impedes farm forestry adoption where opportunities do exist. (The market issues are addressed later in the paper). The lack of successful farm foresters ensures that the industry has few success stories and even fewer practitioner advocates. Many people see the desirability of farm forestry and find it appealing but upon recognising the market distortions and on seeing the economic analysis choose to invest elsewhere. In this paper we choose to look at farm forestry potential from base principles - we ask why the culture or markets are as they are?

"one of the most serious impediments to the development of plantations by small landowners and farmers is the tangled web of restrictions and imperfections that distorts the pricing system for wood in Australia" National Plantations Advisory Committee, 1991.

Impediment 1. Lack of farm forestry culture - farmers

The following indicate the lack of farm forestry culture:

1. "Tree growing" has traditionally been seen as a competitor to "agriculture" and not complementary.
2. Commercial tree growing has largely been the domain of governments and corporations.
3. Lack of general information on profitability, compatibility and options for farm forestry systems.
4. Perceptions of more complex management requirements and new skills required, including changing planning horizons due to long term nature of farm forestry investments.
5. Lack of appropriate silvicultural, landscape design and farm planning skills especially in the use of plantation trees in combination with agricultural systems.

SOLUTIONS: policies which support development of farm forestry culture

Governments, industry and rural training councils adopt a cohesive training and education policy to support farm forestry and overcome weak farm forestry skills base.

A farm forestry education and training policy should explore the use of the most effective and innovative approaches to accelerate the development of a farm forestry culture, by, for example, undertaking the following:-

- (a) Seeking out and supporting the innovative examples (demonstration sites, particularly at field day centres) and exponents (people) of farm forestry in Australia to demonstrate the benefits of tree growing. Financial support for demonstration farms, field days etc.
- (b) Sponsoring exchange programs which encourage inter-regional and international exchange eg. scholarships or subsidised farmer or farm forester visits.
- (c) Supporting formal and informal training programs to overcome lack of appropriate silvicultural and landscape design skills, eg. through TAFE, Agricultural Colleges, University and post graduate courses, such as the Melbourne University Short Course on farm Forestry which targeted agricultural and forestry professionals.
- (d) Adopting innovative training and extension methods which help in establishing links between professionals, practitioners and those considering adoption. In the USA, the Master Treefarmers Program takes tree farmers through 27 hours intensive training at no monetary cost to the trainee. The investment in training the master tree farmer is repaid by them giving a further 70 hours voluntary extension. Melbourne University and the Otway Agroforestry Network are aiming to trial a similar

approach by taking a percentage of active farm forestry practitioners through intensive training in agroforestry options suitable to their region (markets, species, establishment methods) in exchange for transferring information to other interested farmers by conducting farm visits and offering preliminary assessments (technical advice given will be checked by professional foresters).

- (e) Further promote landscape design skills and farm planning skills which incorporate commercial farm forestry where appropriate, and which ensure that farm forestry landuse options are accurately identified within the farm planning process

Impediment 2

Lack of a farm forestry culture - agricultural and forestry professionals

The culture and traditions of the forestry profession and industry and the limited experience in farm forestry of agricultural advisers contributes to slowing the development of a farm forestry.

The forestry profession in Australia has been successful at developing plantation systems suitable for mass wood production. However, it appears to have been hesitant or resistant to becoming involved in the diversity of opportunities presented by farm forestry with its requirements to address natural resource management issues and complex relationships to agricultural systems.

The importance of a single species - radiata pine - demonstrates the triumph of professional and industrial forestry. While many of the technical and knowledge gains (genetic improvements, understanding soil tree relationships etc) could be very significant for farm forestry, unfortunately the systems developed for industrial plantations are not necessarily appropriate to farm forestry. Greater sensitivity to social and environmental goals is required.

Achieving multiple objectives characterises much farm forestry efforts. A prescription approach to plantations, or to farm production doesn't easily accommodate the numerous and varied factors involved in designing appropriate agroforestry systems.

While it is dangerous to generalise about any profession it seems that the forestry profession has become something of a "closed domain" or "guild", while agricultural professionals have focus largely on increasing short term production.

SOLUTIONS

To achieve an informed farm forestry culture an opening up of the professions is required. Foresters have many skills which are valuable and will be increasingly called upon, however it will be necessary to abandon offering prescription that are only aimed at maximising wood production. Advising on the design of systems which accommodate multiple objectives and relationships will be necessary.

While Australian foresters have established a reputation for developing culturally sensitive community based forestry overseas. It is harder to find similar examples in Australia - a greater focus by the profession on creating "culturally sensitive, community forestry" would help break down barriers between the "professional" and the community.

Agricultural research extension has also frequently been targeted at developing prescriptions for farming systems. New approaches will be required to accommodate the diversity of farm forestry options and interactions.

Farm forestry offers many opportunities for agricultural and forestry professionals but will require genuine commitments to multi-disciplinary approaches. Professional advancement through increased post graduate training and a coherent national accreditation system for farm management and forestry consultants in the field of farm forestry is called for.

IMPEDIMENT 3

Lack of a farm forestry culture - state agencies

Sources of advice on farm forestry are dispersed across numerous agencies both State and Commonwealth. There is not a single easily accessible contact point in each state or region, nor is it easy know what information is available in another state or region - information "hitch hikes" around the country.

Responsibility for farm forestry has not been clearly defined with the state government resource agencies, accentuating the possibility of inconsistent advice on farm forestry from agriculture and forestry departments, (or divisions of amalgamated departments).

Despite all the will in the world not to give inconsistent and / or conflicting advice, it is easy for this to happen through lack of communication between different extension services. Whether this happens because of organisational limitations or reflects the development of distinctly different cultures within government departments is irrelevant. However the fact that governments are not able to co-ordinate the advice given to landholders is of major concern.

The increasing corporatisation of the State Government's agencies or research institutes seems to be making it more difficult to get free access to information on farm forestry plantations. Information is increasingly conceived of as a commercial product despite much of its development having been funded by tax payers funds. Agricultural and soil conservation extension services have rarely been able to provided accurate advice on the commercial aspects of farm forestry.

Solutions:

1. Clarify roles of state agencies. In Western Australia the recent Farm Forestry Task Force has recommended and has had Ministerial agreement to establish a Farm Forestry Development Group (FFDG) to oversee and promote farm forestry in WA. To this end the State Government has agreed to the following recommendations re co-ordinated advice,
" That CALM and Agriculture WA establish by 30/6/96 a co-ordinated information service to be called Farm Forestry Advisory Service. And:

That the Farm Forestry Advisory Service ensure that the small operators be made aware of forestry safety regulations and that training in such procedures including fire prevention should be included in FarmSafe WA program.

That the Farm Forestry Advisory Service be responsible for identifying and promoting "Whole of farm" examples of successful farm forestry, demonstrating both the commercial and environmental benefits of its implementation.

That the State and Federal Governments provide substantial new funding for a range of co-ordinated CALM/AgWA research and development. It would address tree and woody perennial crop species and products, processing and marketing, and the integrated production systems."

That the government facilitate the integration of farm forestry into agriculture. That farm and catchment scale technical programs be developed to address hydrological, conservation and agricultural objectives so that farm forestry can be confidently integrated into the landscape, and that the State Government offer a direct subsidy for farm and catchment planning as part of its contribution to the development of farm forestry.

2. There is a need for a farm forestry directory. At present there is no easy way of locating information (commercial and government) and the new regional farm forestry committees

established under the WAPIS will need some kind of networking tools. A directory would give rapid access to interested parties in order to source potentially important information. It would support the emerging regional plantations committees so they don't each have to reinvent "the treeplanter" or the wood flow planning methodologies.

Any directory should contain sections on:

- i. sources of information - eg CSIRO, State agencies, consultants, including key references, available models and data bases, eg. PLANTGRO, TOPOG, TREDAT etc;
- ii. suitable technology for establishment, management, harvesting and processing and would include information on planters, direct seeders, pruners, mobile sawmills etc
- iii. sources of technology;
- iv. conceptual tools - including:
 - how to do a wood flow plan;
 - how to create an inventory of existing farm forestry species in the area;
 - how to establish a farm forestry cooperative and some of the roles of co-ops;
 - commercial options like joint venture options and who has them available;
 - methods for selecting species, and ways of identifying species worthy of further investigation;
- samples of farm forestry incorporation into catchment or farm planning;
- v. sources of seed and selected plant materials for farm forestry use.

Impediment 4 Lack of supporting knowledge systems

Poor knowledge on many species of potential use in farm forestry

Nothing will kill enthusiasm for farm forestry more rapidly than poorly conceived and implemented farm forestry schemes. Poorly selected species and provenances, incorrect information, false expectation of growth, yield and financial return will rapidly destroy the emerging interest in commercial tree growing on farms.

There is poor knowledge at both the formal and informal levels about the performance of many potentially important farm forestry species and provenances. Apart from a few main commercial species in established forestry or plantation regions, there is poor knowledge to support the matching of species to sites, the anticipated growth rates, the best establishment and silvicultural regimes and the likely quality and values of commercial production. Further the lack of effective and tested knowledge means that many plantings are either confined to tried and proven species or are "experimental". However the "experiments" lack any organised way for knowledge gained to be transferred. Much species selection could correctly be described as "hit or miss". However there is not even the potential of learning from others' mistakes as there is not an effective way of building up knowledge from experience in farm forestry sector. The use of the predictive models based on knowledge of native forest species attributes and bio physical data sets is not common practice in Australia, but the CSIRO's Australian Tree Seed Centre has done so extensively for selection of species for establishment of plantations overseas. Recent work has been described in detail in a volume of conference proceedings entitled "Matching Trees to Sites" (ACIAR)

The dispersal of R&D efforts across a diversity of organisations with few structured or formal means of co-operating further impedes the progression of farm forestry knowledge. Farm foresters have few opportunities in determining R&D priorities or gaining access to R&D results in any structured way.

As already mentioned the increasing corporatisation of the State Government's agencies seems to be an emerging threat to the free flow of knowledge. New corporatised R&D agencies are operating on a mixture of publicly and privately funded R&D. There is an increasing sense of competition,

including competition for R&D project funds, commercial contracts and status. Information is increasingly conceived of as a commercial product despite much of its development being funded by tax payers' funds.

Collection and dissemination of knowledge about farm forestry can best be described as "ad hoc" reflecting its low priority status. Historically the lack of awareness of the opportunities signifies the lack of a farm forestry culture within the "knowledge sector".

Solution

Co-ordinated information systems on commercial farm forestry

Clarification of roles between the public and private sector R&D is called for. A co-ordinated information systems on commercial farm forestry needs to be developed if we are to learn from past and current plantings. Each planting is a potential trial - a source of knowledge - yet due to poor records and the failure to record experimental and commercial plantings using a systematic approach, the R&D opportunities are missed.

The adoption of a standardised approach to "performance recording" similar to that used in livestock industry, could overcome this knowledge impediment, but requires an agreed minimum data set and some standardised terms and techniques. Knowledge of tree performance gained from both native forests and plantations could be recorded and available across Australia as a standardised data set if agreement can be reached a national standard assessment method. The existing systems such as TREDAT should provide the foundation for such an approach.

Standard information recorded on plantings should include:-

- location in latitude and longitude,
- species and provenance (if available),
- climatic conditions, rainfall etc,
- site and soil characteristics,
- establishment techniques - fertiliser and weed control etc.

To this basic set could be added growth rates achieved by specified ages, and what is considered the full potential and market opportunities for timber or tree products and the specific "other" non-wood benefits of the plantation, forest or trees provide at each location as the case may be. Additional information could be added. This would be seen as an extension of the "TREDAT" data base and would be useful for identifying experience and knowledge derived from other plantings.

Such recording would assisting ground truthing and refining existing CSIRO models eg climatic mapping programs, "BIOCLIM" and "PLANTGRO". (see "Matching Trees to Sites" for examples.)

Regional farm forestry inventories

While models give us a theoretical capacity to make predictions it is important that they are tested. To support the important predictive capacity of models, it is possible to make greater use of an "inventory approach" to determining how well species have performed in the ground. By looking backwards, examining past plantings, it is possible to interpret the "knowledge contained in the trees". Existing trials in the ground, trees planted for various reasons offer us a wealth of knowledge. With a concerted effort it may be possible to get the knowledge "out of the trees", understood and used more widely. Much useful information could be revealed.

There are public and private trial plots and isolated plantings throughout Australia which to my knowledge, have never been accurately evaluated, or centrally recorded. Despite years of catchment and land protection plantings, and numerous revegetation and farm forestry projects, in most cases, hard figures are missing making assessments of growth rates and economic potential speculative.

Regional plantation committees, REDO's or catchment committees could commission a rapid assessment of relevant information on species and growth rates within identified zones - (eg. catchments, various climatic and geological zones). In order to develop accurate inventory of what's growing where, natural regeneration and plantings (plantations, windbreaks, roadsides and soil conservation planting etc) should be documented, noting species, growth rates and conditions. (One constraint to this approach is that provenance information is frequently lacking for old plantings).

Assessment could be cooperative undertaking between state agencies, universities, local tree groups, catchment committees etc. (Scanning old departmental records could reveal useful facts and figures re locations and planting dates.) Not only would this significantly benefit community education, but it would also generate other options for using the information including analysis of growth rates and potential economic yields, returns compared to grazing etc. Information including locations, could be recorded on computerised data bases, or mapped using GIS.

Knowledge gained would be valuable in formulating regional farm forestry strategies but should also be supported by national coordination and analysis. Information on species suitability to sites and climatic zones could be extrapolated from initial inventories in much the same way as the "PLANTGRO" models provides advice extrapolated from knowledge of native forests. Thus information would be relevant beyond its region of collection and "transportable" to assist selection of species in similar climatic and geological zones.

Inventory approach - an example

Can you currently interrogate any kind of data base (manual, computerised or human memory) which, if asked about spotted gum and the Murray Darling Basin would provide the following:

- 42 years old spotted gum growing on the banks of the Hume Dam (planted River Murray Commission 1954) are now saw log size (some in excess of 600 mm diameter) - this growth achieved on 26" rainfall in clay soils typical of vast areas of the hills of the Murray Basin. Where else are growth rates like this possible?
- On the edge of Ouyen in the Victorian Mallee is a planting of spotted gum which thrives on leakage from a channel which is only filled once a year and 10" of rain.
- Twenty year old spotted gum from the Shepparton Irrigation Districts produced furniture timber.

What else is out there, nobody is sure. There has been little follow up assessment of past plantings. Accurate assessment of what has already taken place will support farm forestry implementation programs.

OVERCOMING PUBLIC POLICY IMPEDIMENTS

"Prices will be market based, at least cover the full cost of effective management (including regeneration) attributable to wood production, including a fair return on capital, and provide an adequate return to the community for the use of a public resource." National Forest Policy 1992

"the timber pricing policies of State agencies act as disincentives to farm forestry. This means that there is less incentive to develop alternate hardwood and softwood supplies to bolster our native forest resources." NFF 1996

Defining the role of state governments as commercial wood growers - softwood and hardwood

Numerous aspects of public policy have considerable impacts on farm forestry prospects and are closely related to the economic and market impediments. In particular the states' log pricing and allocation policies largely set the market conditions and therefore determine the economic settings in which private forestry production competes. The relationships between public and private growers is not clearly defined. The same state agency is often a promoter of, and a competitor with private forestry production.

Private growers compete with timber and wood products sourced from native forests, state owned plantations, imported timber and also materials which can substitute for wood and wood products (metals, concrete, plastics etc). Transport efficiencies ensure that most markets for farm grown forest products are close to log source. In most cases private growers in Australia are competing with either state enterprises or large industrial concerns. The competition with the states is accentuated by the fact that the states are the principle owner of both the softwood plantation estate and extensive areas of native hardwood forests. These issues are further complicated by the fact that the other major plantation growers are also all major processors and therefore significant buyers of state grown timber. Due to their domination of supply and their "command and control" approaches to allocation and pricing, the States effectively set the price of logs in Australia.

The fact that the state is the majority supplier of most logs from both plantations and native forests ensure that state policies have enormous impacts on the market for farm forestry products. There is no other primary product where the state is the major supplier of raw materials to industry, for example, we do not have state wool, wheat or beef farms. With no other rural commodities does the state engage in guaranteeing supply of raw materials to manufacturing industry.

In no other sector does the state guarantee supply to industry in the same way as in forestry. Imagine if a large blanket manufacturer offered to set up a plant in a big regional centre, but only on the basis of the state guaranteeing supply of wool. Imagine further that upon accepting these terms the state began acquiring and operating wool farms in order to meet its commitment. Laughable as it sounds private wood growers are in fact faced with such scenarios.

If farm grown timber is to be "just another farm crop" then working out how, why or under what circumstances it must compete with the state, as the biggest grower, will be critical. Numerous reforms are required if private growers are to operate in fair markets.

For example, growers or investors are uncertain of how they will be treated by the government agencies who operate as both growers and regulators.

The State forest services are under going changes in most states which has resulted in some being made corporate entities. This goes some way towards "privatisation" but none are fully converted.

These reforms creating public corporations have not necessarily helped resolve these issues. The public corporations are hybrid creatures operating with the backing of considerable public investment, large accumulated debts (SA is the exception), the instincts of business but without the public accountability of a government department. The perception is that their commercial instincts are heightened but they still have the monopolistic advantages of a government department. None of them have become sufficiently "privatised" to the point of paying municipal rates but they have diminished or shed their public-good responsibilities such as extension and making research results freely available. The services deny miss-use of monopoly powers and even quote QC opinion (that they have commissioned) that they are not transgressing the Trade Practices Legislation.

In the past State forest services were able to establish vast plantation estates on crown land using low interest loans from the Commonwealth. They have been able to use crown land without paying local government rates. The state services are selling wood in competition with private growers without necessarily being subjected to the same costs of production.

The use of government powers to create these kinds of competitive advantages over private growers has the potential to seriously corrupted the markets for plantation products. The National Competition Policy aims to ensure that Government Enterprises do not have unfair advantages over private enterprise.

Impediment 6

Public agencies or private corporation?

Is there conflict of roles - government as investor, grower and regulator

The unclear or conflicting role of state governments as both regulator and dominant grower/supplier contributes to a sense of unease and uncertainty to private enterprise wood production. Creation of public corporations has not resolved these issues.

Solutions: Clarify roles. Introduce external scrutiny

1. Clarify roles, ensure that the same agency cannot be operator and regulator
2. Subject State Forest agencies to external examination by the Australian Consumer and Competition Commission to ensure compliance with National Competition Policy.
3. Subject public enterprises to same regulations and rates and charges as private enterprises
4. Introduce regular external scrutiny to state agency operations:
 - to ensure compliance with the same regulations as private growers;
 - to review progress in introducing open or competitive (market based) pricing of logs;
 - to identify to what extent the policy principles which are used to determine prices are made clear by the State producers;
 - and to establish if State agencies are using their market power or unfair access to information to gain advantage over private growers. Eg. the difficulties that existing small growers have in

marketing their thinnings is an important disincentive to attracting more landowners into growing trees commercially, as these growers compete directly with thinning from state owned plantations.

5. introduce uniform accounting standards for public forests agencies. Publish annual accounts and subject these to public scrutiny.

Impediment 7

Distorted or unfair log markets:

Main issues re operation of markets for farm forestry products are:-

- lack of obvious and genuinely competitive markets in many regions as effective regional monopolies of both buyers and sellers exist, eg. single large wood using industry within economic haulage distance and/or governments as majority supplier
- potential for markets to be corrupted by the dominance of the state as a supplier
- state governments "command and control" approach to pricing logs and allocating rights to harvest

Solutions:

Ensure introduction of competition or eliminate anti-competitive practices

1. Introduce greater competition:
 - into markets for logs - allow markets to determine log prices;
 - into markets for rights to harvest native forests and plantations - transferable rights, market mechanisms for determining value of allocation rights etc (see "Building Equity, stewardship, and Resilience into Market Based Property Rights Systems". M.D. Young and B.J. McCay for more detail).
3. Ensure that States cannot use monopoly powers and regulatory roles to disadvantage private growers. State Forest agencies should rapidly move to ensure they are not disadvantaging private growers and are complying with National Competition Policy. They should be subjected to regular external examination by the Australian Consumer and Competition Commission to ensure compliance.
4. Any corporatisation of state forest agencies or the privatisation of state plantations must include ways to break down monopoly powers and introduce greater competition into markets for logs - eg specify maximum ownership in any region etc.
5. Sell off state owned plantations (or the rights to cut plantations) and allow market forces to operate. State roles in relation to plantations could then be more clearly defined. The state could regulate all plantation activities in terms of safety, environmental effects etc. There would be no potential for conflicts of interest, and if wood production was profitable and rational use of land then "the markets" would invest in them.
6. Retain public ownership of native forests but clearly define the "rights to harvest" (amount, quality and tenure) and introduce competitive markets for "rights".
7. Separate government agencies responsibilities for forest production and regulation, and subject all forest growers to the same planning and regulatory restrictions regardless of ownership.

Impediment 8

Problems with taxation

For many years uncertainty regarding the taxation treatment of farm forestry has acted as major impediment to investments through

- inhibiting of secondary markets for plantations
- complexity of determining capital gains tax
- creating a climate of confusion and uncertainty through frequent changes and lack of consistency

Solutions

Lobby for the removal of impediments. The ATO is currently acting on impediments finally accepted as unnecessary problems for the industry. eg. no cost base recognised for capital gains when buying and then selling immature plantations. The ATO is also looking at ways to remove the "lumpiness" of returns and excessive tax this engenders.

While there is no need for taxation incentives it is essential that the impediments to forestry being an attractive investment proposition are removed.

Establishing a degree of certainty about the taxation treatment of private forestry is critical to its success. Taxation treatment is one of the key factors influencing investment.

Expanded IEDs for plantation growers to overcome lumpiness of income. Another possibility is to allow farm forestry plantations as superannuation. The Commonwealth could introduce the possibility of nominating farm forestry plantations as part of private super scheme thereby changing taxation liability upon harvesting and encouraging investment. This would require "tree tenure" legislation. (see below)

Impediment 9 Tree tenure

Lack of clear definition of title to plantations

There is a need for "tree tenure" or "forest rights" to permit ownership of trees as distinct from the land they occupy. This would be a powerful tool in establishing clear and distinct markets for plantations and thus facilitate investment in plantation forestry from existing land holders and other parties.

Solutions - forest rights legislation:

In NZ forest rights have been a central component to accelerated investment in farm forestry but in Australia the state governments have been slow to create the opportunity for separate title to plantation trees. In theory the States have accepted the desirability of "tree tenure" or "forest rights" legislation. Tasmania was first, Victoria is about to introduce legislation. WA. has a restricted form where the State can have "tree tenure" or "forest rights" but this is not available to other parties.

There is a need for compatible, if not uniform, legislation Australia wide to overcome confusion and allow investors to operate with consistency across state borders.

"Forest rights" or tree tenure legislation may also opens up numerous investment possibilities including greater use of private and public super funds to fund plantings (see superannuation below). Tree tenure allows farmers to "grow their own super fund" and "cash out" when it suits them, without selling land, thus diminishing the total farm area for the next generation.

Impediment 10

Poor reputation of forestry investment companies

Forestry investment companies have not had a good record in Australia.

Reputation and reliability of forestry investment companies has suffered from many "get rich quick" entrepreneurs who have used "forestry" as a way to cream off profits from funds committed by the investor in trust for the full rotation.

Solutions: Regulation and enforcement to overcome unfair risk and uncertainty for investors

This is not a new problem, in 1977 the Australian Forest Development Institute was so concerned that it undertook to produce a "Code of Practice for Forestry Investment Companies". This was done with representatives of investment companies, the Australian Forestry Council, Institute of Foresters of Australia, and the Association of Consulting Foresters of Australia. The resultant code was published in Australian Forest Grower in 1987 (AFG, 1987) and sent to Corporate Affairs Departments in each state and to the Australian Securities Commission when it was established in 1991.

Unfortunately for the reputation of investment forestry in Australia there seems to be a lack of will by the Australian Securities Commission to see that the codes are met. There is no reason why investment companies should not be a means for wood production on farms either using lease agreements or (when complete) "tree tenure" or "forest rights" legislation. Plantation development can be undertaken as a complementary crop to a farmer's agricultural pursuits using investment capital, efficiency of scale etc provided by the company. Such symbiotic commercial relationships have the potential to assist in overcoming farmers' problems with salinity, lack of shelter and erosion, along with cash flow and lack of discretionary capital, and lack of appropriate skills etc.

Impediment 11 Landuse controls, uncertain landuse planning rules and codes of practice

Inconsistencies, irregularities and other problems with at local government land use planning and permit systems are stated to be a major problem for private growers.

- long term investments subjected to the changing rules by local or state authorities
- grower fears about "right to harvest" and/ or roading charges
- poor legal definitions
- history of restrictions - forestry not treated equally to other rural landuses (grazing, etc)
- local authorities can impose onerous conditions on forestry operations
- planning principles not "effects based"

Solutions:

- (a) There are anomalies in some States where the establishment of plantations may be permitted but not necessarily include the right to harvest. The right to establish should automatically include the right to harvest under mutually agreed codes of practice.
- (b) In Victoria, "agroforestry" is excluded from the requirement of "codes of practice" yet agroforestry has not been well defined in a legal sense. This should be corrected. It has created uncertainty as to where codes are required.
- (c) In Victoria, Codes of Practice are required for private forestry. Local governments has been given responsibility for vetting coupe plans etc without any attempt at training the "responsible officers" in the codes. Each region should have a pool of accredited personnel (consultants) who can advise both the landowner and the Shire for a fee.

- (d) Introduce state wide planning amendments allowing farm forestry (as of right) on up to 20% of farm land (excluding native forest and environmentally sensitive zones). Planning permits would be required in exceptional zones or when more than 20% of shire or catchment was under plantation.
- (e) Review rationale for codes of practice for farm forestry. According to the WAPIS export controls for plantation grown logs will be relaxed subject to adequate "codes of practice" being imposed. However, nobody seems clear on how these codes will be enforced. Imagine if exports of meat, grain or cotton were to be subjected to export licence conditions of uncertain status. The anomalies of imposing restrictions on farm produced logs deserve to be exposed. To be consistent either all or none of the primary industries should be subjected to enforceable codes. Imposing export controls on farm grown logs supports the ideas of codes of practice for all rural industry!

Impediment 12 Infrastructure and transport efficiencies

Transport inefficiencies and resultant costs can be a critical component of the costs of plantation grown timber intended for export. For example, less than "world best" infrastructure at ports exporting logs imposes costs on all export growers but also "shelters" domestic processors from competition for logs

Solutions: identify where transport inefficiencies can be overcome, find examples of competitive transport and handling systems at ports, adopt

Seek out those ports which are "world class" and follow their techniques and industrial relations. The New Zealand Port of Tauranga comes to mind for export pine logs. Another possibility is the use of existing transport infrastructure better. Rail infrastructure is in place and grain handling trucks are only used seasonally, and it may be possible to use these during other seasons.

MARKET IMPEDIMENTS

Perhaps the biggest impediment is the lag time between initial investment and final returns. How can an under supplied sawlog market in the year 2030 send a signal to today's investors to plant more. If it could how would we know that many others were not also responding by significant increases in plantings? This is the inherent nature of the plantation market and is unlikely to change. Like many other long run investments today's decisions must be guided by the best available information on world supply and demand. These figures generally look favourable for wood growers indicating global undersupply. For example the WA Farm Forestry Task Force estimated global undersupply of industrial wood of 533 million cubic metres annually, by the year 2010.

Impediment 13.

Lack of transparent pricing - lack of clear market signals

Lack of transparency in log pricing and contractual sales arrangement is a frequently stated concern of both independent growers and processors. Log prices are not regularly advertised compared with agricultural commodities and private seller cannot follow price trends or choose to sell on clear market information. It is recognised that markets perform better with clear price signals. The lack of clear price signals tends to indicate a series of cartels operating between major growers and major processors.

Solution - introduce open average pricing

1. Introduce regular reporting of log prices in much the same way as prices for other rural commodities are reported, eg in the rural press etc.
2. Introduce commission sales agents for logs. Growers, processors and governments should support the important role of agents and brokers in securing the best price for logs. These agents could operate in the much the same way, and become as central a part of the rural scene as the agents that are an established part of livestock and rural real estate marketing.

3. Introduce greater tendering of lots of plantation grown wood.
4. Press for open average pricing on a regional basis. New Zealand and South Africa have good models to follow.

Impediment 14

Difference in scale between small independent growers and industrial processors

Small independent growers lack bargaining power with log buyers.

Industrial wood users need large volumes and reliable supplies to schedule operations

Solutions -Encourage Cooperatives

The dairy industry operates with similar scale differentials yet has established corporate or cooperative structures which meet the needs of thousands of growers and several large processors. "*In the dairy, industry, cooperatives exist to maximise the combined wealth created in the farm and factory. They are different from companies in ...that they seek to maximise this total or combined wealth, rather than simply the wealth created in the manufacturing firm*" (Bill Hill Chairman of Bonlac Foods Limited 1996). Overseas grower cooperatives have been successful at scheduling and marketing wood from many growers and assisting growers in expanding production and getting higher prices by introducing competition in markets via exporting.

Wood growers co- ops need to be encouraged to create linkages with processors, to negotiate sales and to enable wood flows to be scheduled. Governments could provide greater support to establishment of regional cooperatives and could channel regional planning, research and education project funds through these as means of creating a critical mass of not only wood resources but also interest and innovation in farm forestry.

Impediment 15

Contractors:- scale of efficient operations

Contractors equipped for large scale operations are not readily suited to farm forestry (small) scale operations due to the highly capitalised nature of their equipment. This has left a void of suitably equipped contractors in many areas.

Solutions:

Groups of growers -ideally cooperatives - should encourage the emergence of contractors equipped to handle small scale wood-lots with mobile but less capitalised machinery. It needs to be recognised that this will mean more labour intensive methods and possibly reduced margins for both the grower and the contractor. Value-adding on site may reduce this penalty. Both parties have to be innovative to seek out the best solution for the situation.

Impediment 16 Lack of regional inventories and wood flows

Wood production is spread across private, industrial and government growers. Regional inventories are rarely created which describe the full picture, of either available or surplus resources in volume by year.

Solution - Create regional wood flow plans and inventories

Regional wood flows should be calculated on all wood resources within economic distances regardless of ownership. Full regional inventories allow for more accurate wood flow planning. Projected surplus can be used to attract investment in additional processing and explore alternative markets, eg inter-regional or overseas exports. Industries obtain the benefit of a mix of deliveries summing to least delivered cost, improving "competitiveness". In areas where numerous industries are already competing for available "wood flows" this competition supports competitive pricing. Regardless of degrees of competition, accurate assessments can assist in planning new plantings, undertaking joint ventures and targeting investment and marketing options.

Impediment 17 Long term risk and uncertainty of markets

As well as lack of clear, competitive markets there are numerous other factors which contribute to long term risks and uncertainty of marketing opportunities for independent growers. The security of long term supply contracts is one consideration.

Grower - processor joint venture contracts

For growers who do not wish to invest in farm forestry in a speculative way, joint ventures between growers and processors are a proven means of offering a greater degree of certainty to both parties. Processors have in a number of places in Australia instituted contracts which assist landowners in the establishment phase and may also guarantee eventual markets. The most sophisticated are "joint venture" schemes in which a legal document between the processor and the land owner sets out all the obligations each party undertakes on a defined plantation project and the profits at the end of the rotation are shared on the basis of costed in-puts - labour or cash - that each party has provided and the period of those investments. These in theory can be tailored to each situation. They overcome market uncertainty to both the grower and the processor, with both making an investment bound by the contract. Informed growers or their advisers are in a better position to negotiate contracts and design plantations to suit their requirements and farm plans etc (see section on farm forestry culture).

Impediment 18

Industrial forestry companies changing their investments.

Often processors have changing short term development horizons in order to maximise the returns to investors. Unfortunately these decisions can be undertaken without considering the expectations of existing growers in the region, who can even have received encouragement to invest from that same processor in the first place. In this sense the board of directors of major forestry companies may have to decide between the interest of growers (previously encouraged to invest) or those of shareholders (who clearly have invested).

An example of this situation is when Australian Paper Manufacturers Ltd (now Amcor) was convinced that Australia should be exporting pine kraft pulp. In the Business Review Weekly (Oct. 31, 1981) the managing director Stan Wallis, was quoted as saying that "we have a bright future for exports of kraft pulp. Many developing companies are developing their own paper industries and need one basic material to keep their machines going - kraft pulp. What Australia and New Zealand have got is economically exploitable reserves of softwood. Our real advantage is in the cost of production. It costs us around \$100 a tonne to make softwood (kraft) pulp. In Japan and most other countries it costs \$200 a tonne. If we had surplus kraft pulp at the moment we could sell it at the drop of a hat." APM's subsidiary company, APM Forests Pty Ltd geared up (planted more) for this planned expansion and encouraged private growers to do likewise with joint marketing agreements.

These plantations are now maturing while the facilities for manufacture have not been built, with obvious embarrassment within the company and the wider community. There has never been a forthright explanation by the company to its agreement holders. The company says that it will honour those undertakings, but in its own time. "Its own time" appears to be well past when thinning is a silvicultural necessity (for plantation health and future sawlog yields) both in its own plantations and those of its agreement holders. The excess wood should be seen as an asset not an embarrassment.

Solutions:

Regional discussions - informal or formally through Co-operatives - are required to have both the primary side and the secondary side investing intelligently for mutual benefit. There needs to be good information to recognise "surpluses" and "short-falls" through time so that genuine surpluses for a region can be advertised for new products or exports and shortfalls can be filled by new investors with guaranteed market expectations. (see also wood flow planning)

A possibility for future contract growers is to ensure that there is a clause in their contracts which specifies that failure to thin or harvest by a given date would result in rights to compensation by way of cash or shares to the value foregone. This is similar to penalty clauses inserted in many commercial contracts. It would provide greater certainty to growers, guaranteeing that the companies share the future risks. It would also allow grower expenditure on non commercial thinnings and recognises that the company has a responsibility to contracted growers. For the companies it would enable them to consider these cost as a liability when changing its investments.

Impediment 19**Lack of markets for environmental services & lack of cost sharing frameworks**

At present there is no established way of the public paying (investing) in the non-wood, non-farm production benefits of farm forestry. For example, at present there is no framework for local government and irrigation water users to invest in planting which have both some commercial and some environmental benefits, such as, wood production, farm shelter and the benefits of remediation of down-stream problems in an extensive catchment or the reduction of salt in streams.

Solution - Establish cost sharing frameworks which can pay for public benefits

The present failure to pay for public or environmental benefits of farm forests could be overcome by establishing effective cost sharing frameworks. Commercial private planting should proceed on the basis of commercial investment decisions, but where clear public benefits will result from increased farm forestry plantings, these should be paid for by government to the extent of the public benefit, eg investment could be encouraged into salinity recharge areas by payment for the public benefits achieved.

Although many of the cost sharing issues requiring clarification relate to local, regional or state scales of operation, the Commonwealth Government should take the lead role in establishing adequate and effective cost sharing frameworks while it remains involved in natural resources management through funding landcare and farm forestry programs.

The questions of formal arrangements for cost sharing should be developed before throwing heaps more money at resource management problems. Formal cost sharing arrangements would enable public and private interests to participate and state, local and national involvement. These ideas are more fully detailed in the recent MDBC Consultants report on "Cost Sharing Frameworks for On Ground Works" by AACM International.

Impediment 20**Difficulties in attracting external investment****Lack interest from super funds and lack of suitable accounting standards**

One would think that long term crops like farm forests which appreciate in value towards a large final payout should be a natural investment for the superannuation industry. However in Australia there is apparently minimal interest in farm forestry or plantation investment by super funds.

There never seems to have been much interest, despite extensive periods in the late 1960's and the 1970's when well managed plantation forestry out performed typical super funds investments of Commonwealth bonds, shares or real estate according to a study undertaken by a Mr. K. Shiels.

Mr. Shiels was a former economic and investment adviser to the Commonwealth Bank. He came to these conclusion when he undertook a study of the superannuation and forestry investments. He wrote up his findings in a paper present at the 1982 AFG Conference at Mt Gambier. He cited only one case of Australian super funds making substantial direct investment in afforestation (as opposed to holding shares in companies who have plantations). In the early 70's the Wales Retirement Fund (Bank of NSW Staff Superannuation - now Westpac) invested in Timberlands Forests Pty Ltd. Timberlands has grown into a sizeable company with approx 24,000 hectares of pine plantations but no longer has the backing of official super funds. Its funding now comes from investors (mainly Sydney professionals) who invest in their own right for super purposes on a year by year prospectus. Shiels used Timberlands to compare the performance of plantations against the typical investments mentioned above.

Shiels also went to England to study the situation there. He concluded that the reason super funds were major investors in forestry there were:

- a conviction that investments in plantation forestry were likely to increase faster than inflation -vital to long term investments - timber prices have grown faster than inflation;
- forecasts of growing world timber shortages from authoritative organisations (FAO, EEC etc);
- knowledge that the energy costs of timber substitutes (aluminium, steel, concrete, plastics) adversely effected their likely competitive advantage over wood products;
- negative real yields obtained from shares through the 1970's.

English super funds are major investors in plantation forestry in both Scotland and the USA. Why are Australian funds not interested in investing here?

It appears that long term crops with no recognisable cash flow and doubtful status in terms of quarterly or half yearly capital gains are not attractive to listed funds managers. These funds compete on a quarterly basis and need to demonstrate the competitive nature of their earnings. They may well invest in shares of major forestry companies but are unlikely at present to invest directly in afforestation holdings. It may only be a case of changing the accounting standards to allow the regular revaluation of standing trees to be recognised for funds to invest in plantation forestry.

Private super schemes are another likely source of investment funds but at present the lack of tree tenure legislation which clearly defines the legal right to the trees would impede individuals from investing in farm forests directly. Further it seems that the Superannuation Industry (Supervision) Act currently restricts the forms of investment that private super funds managers can engage in. While it seems they can invest in woodlots/plantations via prospectus, it is doubtful whether private super could be an source of investment for farm forestry plantations (with or without tree tenure).

Solutions

1. Review and consideration of amendments to the super act to permit farm forests secured by "tree tenure" rights to be admissible as part of private super. After all they are not necessarily any less secure than many shares in listed companies, or those plantations developed under management company and invested in through prospectus. At the time of writing further advice is being sought from specialists in the field.
2. As above but with focus on farmer's private super in the form of farm forests on own property
3. The solution to the question of revaluation of standing timber seems to lie in the adoption of an accounting standards which provides a fair assessment of the increased value of trees as they mature. Changes to the accounting standard which would be used for revaluing standing timber

assets is still under consideration, but it should be resolved clearly in order to satisfy the needs of private and public super funds managers, share holders in afforestation companies etc.

The Australian Accounting Research Foundation (Caulfield, Melbourne) has reviewed forestry and other similar industries in its discussion paper No. 23 "Accounting for Self Generating and Regenerating Assets" (Roberts, Staunton, and Hagan. May 1995).

This paper shows that some but not all forestry companies in Australia and New Zealand take account of annual accretions of growing plantation stock in include these in their annual accounts as appreciating assets, however there is no common standard. The companies that do this are all major listed companies - North Ltd, CSR Ltd and Auspine Ltd. The state forest services use different approaches in handling their accounting of appreciating timber assets.

The discussion paper recommends that current market value be the standard where possible. Current market value is defined as "the estimated amount that an asset should exchange on the date of the valuation between a willing buyer and a willing seller at arms length transaction after proper marketing, where the parties had each acted knowledgeably and without compulsion."

The paper recommends a surrogate approach where young trees are involved and mentions use of Net Present Value calculations. They also mention the use of composite valuation models in which costs are compounded to age 5 and returns discounted from rotation age and mathematically smoothed to achieve a valuation for each age class.

Impediment 21

Costs of insurance for farm forests

Insurance even with the "Australian Forest Growers" Group scheme is a very significant cost for maturing plantation assets and is the most expensive cost an individual grower will have over the length of a rotation.

Cost of insurance of plantations is not strictly related to risk on an actuarial basis for the plantation sector, let alone significant variations for different locations within the sector (increased or decreased fire risk due to climate and location etc). The premiums negotiated each year relate more to the current capacities of the world's institutions to provide cover and this takes in all the disasters like earthquakes, shipping losses and the like.

Current premiums are about 1% of valuation per year for individual growers. On the other hand industrial forestry companies can achieve much lower rates for plantations by adding their forest assets to their much bigger industrial assets. This is a commercial reality not available to individual growers even within a group scheme.

If we take the costs and returns of a typical hectare of wood-lot over a 30 year rotation and use the three premium rates of the Australian Forest Grower's scheme through Jardines Australia, a table of internal rates of return and net present values show the drag of insurance on profitability. (see table over page)

Per Hectare For Rotation								
IRR%	Costs of Establishment & Maintenance		Profit Plus Insurance		NPV Costs		Returns Less after Tax	
	SUB-TOTAL		TOTAL COSTS		NPV (5%)		TOTAL NPV (5%)	
	TOTAL		COSTS		(5%)		(5%)	
NO INS,	\$4947	\$0	\$4947	\$3406	\$6821	\$693	6.67%	
VALUE 1	\$4947	\$1723	\$6670	\$4049	\$5942	\$365	5.89%	
VALUE 2	\$4947	\$2295	\$7242	\$4262	\$5651	\$256	5.63%	
VALUE 3	\$4947	\$2524	\$7471	\$4348	\$5534	\$212	5.52%	

"Values 1 to 3" refer to different levels of management employed and insurers can select the one that reflects their circumstances best. For example a "Value 1" plantation may have lower costs as owner-operated whereas with "Value 3" the costs may be higher because a managing company is employed.

The costs and returns used in the above are close to those used in determining the AFG Valuations 1994/95 which are still current in 1995/96 for the Group Scheme through Jardines. Tax rate of 49% was assumed.

Government owned plantations are not insured as the Government accepts that risk to itself. When Governments "privatise", there may be a need to insure. The current corporate entities like Victorian Plantations Corporation which are half-way to being private do not insure because of their large well dispersed spread of risk.

While it might appear that the big industrial companies and the Government services may have cost advantages over the individual growers because of their inability to spread their risk, the big growers have higher overheads due to their investments in fire suppression equipment and on-going staffing required which the private growers avoid. The small growers close to the large plantation resources of companies and State services have the benefits of this infrastructure as fires are fought no matter the size of the fire and ownership of the land.

Solution:

Bargaining power for individuals will improve through aggregation in organisations like Australian Forest Growers or through Co-operatives or both. AFG has been looking at "captive" insurance which members themselves would provide mutual protection and the cost theoretically would relate to the specific forestry risk. It also poses some risk in the event of a catastrophic fire season.

While insurance premiums are fixed year by year on total market capacity rather than calculated from actuarial experience sector by sector, there does not appear to be a solution to the high costs.

Individual growers see their premiums being much higher than those for large companies but they also have to realise that they are not contributing to the fire fighting capacity to anywhere near the same as their large neighbours.

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APPENDIX 2 Project submission

B 1. Project Title:

Policy Reforms for Agroforestry – Post NPAC

– An investigation of reforms to overcome impediments to agroforestry.

B 2. RIRDC Program. Joint Agroforestry Program 2.1.A

B 3. Objectives.

- To identify current policy impediments to agroforestry;
- To develop recommendations for targeted and comprehensive reforms to government (State, Commonwealth and local) resource management, planning, economic and industry policies and industry practices which currently act to impede agroforestry;
- To identify adoption (or otherwise) of effective agroforestry policy reforms, in line with the National Forest Policy Framework, the NPAC Recommendations, and the recent ABARE and Industry Commission Studies;
- Access effective incentives which will lead to greater adoption of agroforestry.

B 4. Background to the proposal

- The environmental, economic and social benefits of accelerated adoption of agroforestry practices are generally acknowledged but difficult to quantify formally. The various factors which impede adoption of agroforestry are similarly difficult to target accurately. However, several recent inquiries and national policy initiatives provide a strong theoretical foundation for this project, having made numerous recommendations regarding agroforestry/farm forestry (refer to the National Forest Policy, NPAC, and ABARE and Industry Commission Studies.) Despite the numerous inquiries, obvious benefits and oft-stated commitments to farm forestry by governments and industry, substantial real progress in this area has been slow (with a few exceptions). The recent dispute over export woodchips has focused national attention on the need for an ‘industry plan’ and for fuller exploration of alternatives. This work would assist the development of such an approach by providing an assessment of current policy positions and preferred policy reforms.

B 5. Relevance and Benefits

- The project has the potential to benefit many of Australia’s medium to high-rainfall agricultural industries, along with forestry and forest-processing industries. World demand for timber products is predicted to rise, while supplies are contracting, particularly in the Pacific Rim (Abare/Australian Forest Grower 1994). However, there is still widespread reluctance to invest in farm plantations and agroforestry despite the improving commercial prospects for Australian plantation products, and the well-documented land and water care benefits of agroforestry. Potentially huge economic and land and water resource management benefits flowing from agroforestry are dependent on a favourable economic and policy environment for investment. Furthermore, there is considerable inconsistency and disparity in effectiveness of policies between States. For example, while Western Australia has successfully attracted millions of dollars in foreign capital to joint venture agroforestry, this has not occurred in the eastern States. A whole raft of current policies act as impediments to agroforestry and without broad reforms the substantial economic potential will not be realised. Potential economic benefits include:
 - increased production of exportable materials,
 - import substitution,
 - greater adoption of improved land and water resource management,
 - using commercially motivated solutions to landcare problems,
 - alternative landuses and industries,
 - diversification of outputs from farms and regional economies and improvement in rural employment prospects etc.

However improvements in both grower, industry and government strategies and policies are essential to fully realise this set of benefits. Reforms which support accelerated adoption of agroforestry (or at least remove impediments to it) therefore have huge national economic and environmental significance, in terms of national accounts and land and water resource protection. But while it would be arrogant to assume that such benefits would flow directly from this research, it is nonetheless a subject worthy of substantial research effort.

This project will research the policy foundations for agroforestry, rather than the issues arising from, say, incorporation of particular species into a given farming system. If the numerous benefits of agroforestry are to be achieved, both technical and policy research are required. Unfortunately there has been a tendency in Australia to focus research efforts on the technical at the expense of the policy. While much of the technical will inevitably be restricted to specific regions, species or farming systems, policy and economic research on the scale proposed may assume direct relevance to agroforestry throughout the country.

APPENDIX 3 List of workshop participants and other key informants

Queensland Workshop: QDPI, Brisbane, 24 July 1996

Tom Just	General Manager, Forest Industries Development, QDPI
Laurie Capill	QDPI
David Lamb	University of Queensland, Brisbane
Mike Wade	QDPI, formerly CSR and AFG Councillor
Kathryn Adams	Exec. Director, Forestry and Wood Products Research and Development Corporation
Jackie Williams	Mary Valley Farm Forestry Management Committee
Gordon Banks	Mary Valley Farm Forestry Management Committee
Geoff Clare	Forest Industries Development Division, QDPI
Geoff Borschmann	Greening Australia, Qld
John Mullins	Department of Natural Resources, Brisbane
Peter Voller	Department of Natural Resources, Dalby
Morrie Passmore	Stanthorpe, Qld
Andy Grodecki	DNR, Indooroopilly
Ashley Sewell	DNR, Sunshine Coast
David Eyre	Dept Environment and Heritage

Other Informants

Jack Mitchell	Plantation Timber and Rainforest Consultant Samford Qld.
Rod Fensham	Botanist Brisbane

Western Australia

WA Farm Forestry Development Group	Perth
Keith Barnes	Perth Timber Corp Pty Ltd
John Bartle	Manager farm Forestry Unit, CALM WA
Seamus Mullholland	Manager Plantations Group, CALM WA
Peter Eckersley	Ag. WA
Volker Mischker,	Trees on Farms Coordinator, CALM, Esperance
Marden Hundley	Greenscene Agroforestry resource Centre, Esperance
Julia Levison	Timber 2002, Albany
Jim Whitten	Farmer, farm forester, Albany
Louise Duxbury	Greenskills, Denmark
Kevin Forbes	Deputy Shire President, Plantagenet Region and Timber 2002
Alex Campbell	Farmer, farm forester, Albany and Chair of the Farm Forestry Development Group
David Mattison	Farmer, farm forester, Albany

NSW Workshop: Casino, 23 July 1996

Rob Dyason	Coombell Farm Forestry Training Centre, Coombell
Michael Combe	Forestry Consultant, Casino
Bruce Cole-Clarke	Dept of Land and Water Conservation, Agroforestry, Grafton
Mark Sandstrom	Dorrigo Farm Forestry Centre
Dr. Alison Specht	Southern Cross University, Lismore
Nick Emitage	Southern Cross University, Lismore
Martin Novak	Subtropical Farm Forestry Association, Lismore
Peter Gould	Subtropical Farm Forestry Association, Lismore
David Lovell	Nimbin, NSW
David Wilson	State Forests, NSW

Victorian Workshop: Gippsland

Robert Farmer	Farmer
Geoff Carruthers	Gippsland Development Ltd
Max Speedy	President, Gippsland Wood Producers Cooperative.
Braydon Jenkin,	District Forester, Amcor Plantations Pty Ltd
Dirk Howerda	West Gippsland Catchment and Land Protection Board
Angela Munro	Consultant, Melbourne

Melbourne University

Professor Ian Ferguson	School of Forestry, Melbourne University, Parkville
Rowan Reid	School of Forestry, Melbourne University, Parkville
Roslyn Prinsley	RIRDC, Kingston, ACT
Francis Grey	Economist at Large Noble Park, Vic.
Dave Coates	Victorian Association of Forest Industries Melbourne
John Wright	Victorian Association of Forest Industries Melbourne
Trevor Robertson	Adviser Natural Resources and Environment, Office of the Premier, Melbourne
Grant Kirby	Business Victoria, Melbourne
Jim Donaldson	DPIE Forestry, Canberra
Danny O'Neil	DNR & E, Melbourne
John Houlihan	DNR & E, Melbourne
Tracey Jarvis	DNR & E, Melbourne
Rob Youl	DNR & E, Melbourne
David Mitchell	Deutsche Bank, Melbourne

Other Victorian informants include:

Frank Hirst	Department of Agriculture, Leongatha, Vic.
Andy Knorr	Radcom Sawmills Yarram

Murray Brown	Purchasing Manager, Sunwood Timbers, Yarram, Vic.
David Williams	Marketing Manager of Victorian Plantations' Corporation
Angus Pollock	Forest Resource Manager; AMCOR, and Chairman, Private Forestry Taskforce
Angus Borland	Plantation Manager
Max Speedy	President, Gippsland Wood Producers Cooperative
Graeme Crawford	Macclesfield Rd, Flynn, Vic.
Bob and Helen Paterson	NE Victoria Forest Growers' Cooperative Ltd
Angus Howell	North East Farm Forestry Program
Frank Deans	Bonnie Doon, NE Victoria Forest Growers' Cooperative Ltd

South Australian Workshop: Dept Primary Industry, Flaxley, SA

Dr Brian Cornish	AFG	
Peter Bulman	Dept Primary Industry, SA	
John Pratt	Dept Primary Industry, SA	
Martyn England	Dept Primary Industry, SA	
Rod Smith	Dept Primary Industry, SA	
Geoff McLean	Dept Primary Industry, SA	
Jeff Simmons		
Trevor Probert	CSR Ltd	
Tony Brookman	Farmer, farm forester	
Bill Evans	farmer, farm forester	
John Campbell	farmer, farm forester, Landcare	
Richard Bennett	farmer, Landcare	

Tasmanian Workshop: Launceston, Private Forests Tasmania

Desmond King	CEO, Private Forests Tasmania
Richard Hart	Private Forests Tasmania
Peter Kent	Tasmania Development and Resources
Ian Dickenson	Private Forest Grower and Tasmanian Farmers and Graziers etc.
John Smith	North Forest Products
Ross Waining	Boral Ltd
Ross Henderson	NW Tree Growers Cooperative and AFG

APPENDIX 4 Farm forestry planning definitions for local governments

Michael Hall has suggested the following set of forestry definitions for planning purposes by non-forestry professionals (e.g. local government planners) in response to a Victorian review of rural planning.

(a) '*Agroforestry*'. The existing Victorian Planning definition is 'a land management system involving the integration of timber production and agriculture on the same land'. A ministerial statement expands this by saying that the timber production may come from, variously, a remnant native forest, woodlot, or wide-spaced trees and be classed as 'agroforestry'. (Hall to Maclellan, 28 October 1993 and Maclellan to Hall, 1 December 1993, Timber Production Amendment S13.)

'Land' is to mean all the property in one ownership – normally a farm. This is the usual meaning of 'land' for Victorian planning purposes.

A requirement for a permit or abiding by the Codes of Forest Practice are not required under S13 regulations for agroforestry.

A new definition could say that 'Farm Forestry' and 'Agroforestry' have identical meanings for the purposes of planning in Victoria; both refer to a landuse where commercial timber is produced in association with 'agriculture' and can be native forest, woodlot, timberbelt or widely spaced trees, and moreover if these are less than 40 hectares, the requirement for both permits and codes of practice would be waived.

(b) '*Plantation*'. The Resource Assessment Commission used the following: 'An intensively managed stand created by the regular placement of planting stock or seeds. (This definition is somewhat arbitrary and variants exist.)' (*RAC* vol. 1, 1993)

(c) '*Forest*': 'Woody vegetation, usually with single stem, having a mature stand height exceeding 5 metres, with existing or projective foliage cover of overstorey strata about equal to or greater than 30 per cent.' ('Woodland' has the same definition but with overstorey cover of 10–30%.) (*RAC* vol. 1, 1993)

(d) '*Clearfelling*': 'the removal of all trees on a specified cutting area. Modified clearfelling means the removal of only some of the stand: trees are retained for environmental protection or conservation reasons.' (*RAC* vol. 1, 1993)

(e) '*Afforestation*': 'Establishment of plantations on previously cleared land' (MJH).

(f) '*Reforestation*': 'Re-establishing forests or plantations following clearfelling' (MJH).