Resourcism and preservationism in New Zealand forestry: An end to the dichotomy?

Chris J. K. Perley*

Introduction

One of the strengths of the foresters' education is the attempt from our professors of old to provide a social context for forest management. We know that forests have been treated differently through the ages; as providers of venison for kings and vert for the local populace; as capital and fibre to exploit and clear in favour of grass; as scientifically managed sustainable yield; and as reserve.

Currently, New Zealand has an allocative (segregated) forestry sector where forest production is provided by a commercial element that sees forests as a utilitarian resource, and where environmental protection functions are presumed to be provided by reserves. The rise of a number of international trends in science and policy is unlikely to provide much succour to this segregationist approach. These emerging trends point to a future where an integrative approach to landscape - with its people and its environment - will supersede the view that specific pieces of land can be managed for singular objectives in isolation from their wider context. This integrative approach represents a synthesis between people and the land, between nature and culture, between 'preserves' and 'resources', between 'alien' and 'native'.

The New Zealand Historical Context

One environmental historian argues that five phases are associated with the history of exploitation of the New World (Botkin 1995, p120):
1 Discovery.
2 Intense Exploitation - associated with mining and land use conversion, or at least high-grading of forests with little thought for the ecological (or social) consequences.
3 Awakening Conservation - associated with the first attempts at rational, scientific-based management of wild, living resources - often with single or limited utilitarian purposes.
4 Environmentalism - associated with the growth of public awareness of environmental issues.
5 An eventual synthesis between humans and their new environment (becoming 'native' to a place) - associated in the current age with a number of trends in science, management, values and metaphysics.

New Zealand went through a similar process, especially post-European contact, though the intense resource exploitation stage is just as applicable to the first movement of humans into Australasia (Flannery 1994). Settlement began with the mining of resources for capital and land use change, followed by the eventual development of scientific forestry management principles between 1873 and 1921 when the State Forest Service was established (from 1949 the New Zealand Forest Service [NZFS]).

Continued exploitation, especially of indigenous forests, was the catalyst for a rising environmentalism from the 1960s. The Beech Scheme of the 1970s gave the nascent environmental movement a considerable boost. This NZFS sponsored scheme involved both conversion of indigenous forest to 'more economic' forests of introduced species, and the sustainable yield of indigenous forest. The focus of this sustainable yield management was production of a sustainable 'crop' of timber, rather than any sustaining of ecological processes and forest structures. 'Efficient' yield regulation involved considerable forest simplification, and a particular preference for forest composition, both in terms of species favoured, and tree age and form. This preference did not always favour other non-utilitarian forest values.

The Beech Scheme was justified by values that viewed forests as 'resources' alone. A growing proportion of the New Zealand public (including many forestry professionals) no longer accepted that indigenous forests should be thought of in this manner, especially if the result was the mining, conversion or simplification of these forests. The antithesis to this resourcist view of forests was preservationism, which involved no harvest, and had its own set of values. These values included the view that nature would look after itself, and that any human extraction inevitably was associated with hubris and utilitarian motivations (Hull et al. 2003), which resulted in harm to the 'balance of nature'.

It was a case of the predominant 'scientific management' and political values differing, in the main, from the emerging values of the public - a lesson for all policy makers and forestry managers that remains relevant with current emerging trends. The lesson did not end there. The NZFS's attempts at better standards of multiple use and sustainable yield forestry - especially in the indigenous forests - were made difficult by conflicting government policies such as price controls and required threshold rates of return. NZFS was also a useful target for the Labour Government in 1984-87 because of its role as the unpopular agent of policies, many of which its own people opposed. It became one of the first government departments remodelled to suit current economic and environmental views in 1987.

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The model of forestry and environmental management favoured by both Treasury economic policy and environmentalist interests was for an allocation model (segregation model) where objectives are presumed to be most efficiently and effectively met by allocating land to single purposes of either the environment, or commerce. Use and protection were assumed to be two mutually exclusive goals, and the science and policy relating to these discrete goals were, likewise, segregated. This was partly in response to what was perceived as a failure of a supposedly integrative multiple use approach under the NZFS, and partly because the single purpose allocation model suited the beliefs of two parties who, otherwise, had very little in common. These underlying values and beliefs relate particularly to reductionist and mechanistic approaches that validate reducing a complex system to individual parts managed in isolation from each other, and ideas of both ecological determinism and economic determinism.

The effect of the changes was the separation of forest management in New Zealand between a department whose responsibility was protection (the new Department of Conservation), and a corporation whose responsibility was to make a profit. The results of policy decisions grounded in ecological and economic determinism have created problems. Conservation objectives are not being met, and biodiversity continues to decline (Craig et al. 2000). In acknowledgement of these problems, there is a growing membership within the science, policy and environmental movements who question whether the allocation model is working, or can work, and whether the assumptions underlying it have any validity in fact. They advocate an approach, or at least an acknowledgement of a pluralism of approaches, to environmental management that is more integrative of society, and less dependent upon peopleless reserves as the dominant conservation approach (Malloy 1988, Given 1995, Moller 1998, Norton 1998, Perley 1998, Meurk & Swaffield 2000, Craig et al. 2000, Norton & Miller 2000).

The last of Botkin's five stages represents the move from environmentalism, where many of the motivations are premised on removing humans from the environment, to sustainability, premised on an awakening realisation that a sustainable future requires people being part of the land rather than as segregated exploiters or admirers. Botkin referred to this emerging synthesis of environmental and socio-economic imperatives as 'our nascent attempts to humanise the previously strident environmentalism and to find a better balance between the perceived need to use natural resources and the perceived destruction of those resources' (Botkin 1995, p122). It has implications for both the preservationist and the resourcist management approaches. In New Zealand that synthesis of environmental and social interests began to emerge in the mid to late 1990s (Timberlands West Coast forestry management plans being one operational example), but, amongst Maori, these environmental perspectives are nothing new (Patterson 2000), as illustrated by the co-management work in association with Otago University's Zoology department (H. Moller pers. com.).

Five Paradigms of Forest Management

At least five different paradigms are associated with resource management in New Zealand. They are related to the stages of exploitation above, and include:

- Preservation, where a forest represents a 'natural', 'wilderness' ecosystem divorced from humanity, and dependent for its integrity on a segregation from cultural ‘intervention’, which by definition 'harms'.
- Ecosystem ('ecologically sustainable') Management, where a forest represents a socio-ecological system, embedded in a wider landscape system where culture and nature are both integral to the system.
- Multiple Use & 'Sustainable' Yield, where a forest represents a producer of multiple goods and services.
- 'Sustainable' Cropping, where forests represent a utilitarian fibre or timber crop, like wheat.
- Mining, where forests represent a utilitarian capital resource.

Each of these five perspectives implies some underlying premises - about ecology; landscape ecology; economics; the place of humans as integral to, or segregated from, 'nature'; the ethical rights and responsibilities of 'owners', local communities, other species and ecosystems; and the appropriate decision making and scientific models for 'managing' forests. These premises relate to science, ethics and metaphysics.

Table 1 provides a more detailed description of each of these paradigms, with further details available in Perley (2003).

The Ethical Underpinnings of Forest Management Paradigms

Resourcism and Preservationism

The two major schools of thought in environmental philosophy that have dominated over the last 100 years are preservationism and resourcism (Callcott & Mumford 1997). In Table 1 they represent the incompatible extremes at either end, which can only coexist within an allocation model of national conservation strategy where one piece of land is allocated to 'protection' and another to 'use'. Resourcism comes in varieties from 'soft' to 'hard'; with 'soft' resourcism (associated with multiple use and sustainable yield) the more accommodating of explicit social...
Table 1: Forestry Management Paradigms

<table>
<thead>
<tr>
<th>Paradigm</th>
<th>Description</th>
<th>Premises</th>
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<tbody>
<tr>
<td><strong>Wilderness Preservation/Reserves</strong></td>
<td>Single objective management for 1. 'Intrinsic' or 'instrumental' forest values and 2. Non-extractive utilitarian values - soil and water, aesthetics, recreation, etc. Requires external financing to maintain ecological health (esp. pest control); no extractive use.</td>
<td>Preservationism, mechanistic metaphysics; culture &amp; nature separate, ecological determinism; laissez faire nature (nature knows best); extraction harms; idealises 'balance of nature'; management hubris (assumes certainty) &amp; top-down; intrinsic values exist; community &amp; economy inconsequential.</td>
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<td>(E.g. NZ Dept. of Conservation)</td>
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<td>Protagonist: JOHN MUIR</td>
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<tr>
<td><strong>Ecosystem Management</strong></td>
<td>Shifting multiple goals in adaptive 'experimental learning' decision making process. Pluralism in management approaches. Management for 1. 'Systemic' or 'instrumental' forest values and 2. Wider range of utilitarian values, including timber. Management is within ecological disturbance patterns to protect contingent/existence values. Cross boundary considerations.</td>
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<tr>
<td>(Sustainable management)</td>
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<tr>
<td>Protagonist: ALDO LEOPOLD</td>
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<tr>
<td>Focus of extractive management is on <strong>what is left</strong>, not what can be 'sustainably' extracted.</td>
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<tr>
<td><strong>Multiple Use &amp; Sustainable Yield</strong></td>
<td>Mixed environmental, social and economic objectives; Management for usually utilitarian (and explicit instrumental) values - timber as well as soil and water, aesthetics, recreation. Timber harvested at or below max. sustainable yield levels to cater for other utilitarian values. 'Intrinsic' environmental benefits are usually incidental, though not inconsiderable.</td>
<td>**Socio-ecological sustainability; systems metaphysics; culture &amp; nature integral each to the other; ecological indeterminism &amp; patch dynamics; landscape ecology (cross border considerations essential); extraction need not 'harm'; management accepts uncertainty (humility); community integral to decision making (bottom up); systemic values exist; forest is an end in itself, not merely a means.</td>
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<td>(E.g. Some NZ industry and farm forestry)</td>
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<tr>
<td>Protagonist: GIFFORD PINCHOT</td>
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<tr>
<td>Focus of management on extractable 'allowable' yield over long-term.</td>
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<tr>
<td><strong>Sustainable Yield 'Cropping'</strong></td>
<td>Single objective on (usually) sustainable timber yield. Social and environmental constraints, other than sustainable yield, are imposed by regulation/legislation.</td>
<td><strong>Hard resourcism</strong> (Hard utilitarianism); Mechanistic metaphysics; economic determinism; management hubris (assumes certainty); culture &amp; nature separate; agronomic fibre or crop focus; ownership dominance, top down directives; community &amp; environment inconsequential.</td>
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<tr>
<td>(E.g. Much NZ industrial forestry)</td>
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<tr>
<td>Focus of management on relatively short term maximum yield</td>
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<tr>
<td><strong>Mining/liquidation</strong></td>
<td>Single objective of either maximising profit or land use change. Timber harvest rates at above sustainable yield levels. Funds not invested back into the forest system - invested in next mining operation. Rotation lengths reduced to minimum, or irrelevant.</td>
<td><strong>Hard resourcism</strong> (Hard utilitarianism); Mechanistic metaphysics; economic determinism; management hubris (assumes certainty); culture &amp; nature separate; agronomic fibre or crop focus; ownership dominance, top down directives; community &amp; environment inconsequential.</td>
</tr>
<tr>
<td>(SE Asian logging companies, some NZ industrial forestry)</td>
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<tr>
<td>Focus of management on 'efficient' extraction of capital</td>
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and ecological needs, while 'hard' resourcism sees forests as a narrow economic utility for the benefit of those who own the resource.

Resourcism is closely associated with the moral theory of utilitarianism, where land, including forest, is expressed as commodity and reduced to a means to an end of goods and services providing utility to people. Some have argued that the preservationist position is also explicitly utilitarian and anthropocentric, with reserves set aside based on provision of recreation, aesthetics, science, and spiritual elevation (Forman 1995a), with biological conservation as a side effect (Forman 1995b).

Fortunately for preservationism, its ethical basis can also be ascribed to duties to ecosystems as ends in themselves, and to the rights of species, or communities (Nash 2002). Unfortunately for preservationism, many of these duties and rights are based on an idea of na-
tion for their required idea of nature, particularly with the emerging new paradigms in ecology, systems theories of nature, and landscape ecology, as well as the growing understanding of the place of humanity within what are evidently ever-changing socio-ecological systems.

The Multiple Use and Sustainable Yield paradigm is closely aligned with the classic scientific forestry management paradigm taught to most forestry professionals over at least the last 100 years. However, with the emergence of broader landscape ecology and public participation trends, the classical emphasis on regulating yield of particular goods favoured by forest owners is no longer sufficient. The Forest Stewardship Council is but one manifestation of a growing desire for the classical multiple use and sustainable yield to be more broadly focused by ensuring forest management is considerably more accommodating of needs outside the boundary of the forest - both to the wider landscape ecology, and to the wider community. Integral to this modified multiple use and sustainable yield paradigm are: systems thinking; accepting uncertainty in decision making; and bottom up participatory processes.

**Ecological Sustainability (Ecosystem Management)**

The rise of ecological sustainability as an environmental philosophy (and its operational arm of 'Ecosystem Management') is associated with a number of emerging trends, particularly relating to landscape ecology and emerging paradigms in ecology, and theories of socio-ecological systems.

Both 'intrinsic' and 'instrumental' values are premised on a view that culture is separate from nature. These values relate specifically to either people, or the environment. Rolston (1988, 1994) provides the basis for an ethic that relies upon a view that culture is not apart from nature. Human duties within ecosystems suggest a 'systemic' relationship that is reciprocal - each is integral to, and co-dependent on, the other - giving rise to the concept of 'systemic' values. Given this view of cultural and natural interdependence, ecological systems become socio-ecological systems (SES), a concept emerging with the rise in ecosystem management and co-management since the 1990s. In contrast, the more usual reference of human duties to ecosystems suggests a mechanistic relationship from one separate entity with another - a stewardship relationship, much like that rationalised by the 'Multiple Use & Sustainable Yield' paradigm.

The socio-ecological land ethic of Aldo Leopold (1949) also suggests a duty within the land (systemic), rather than to the land (stewardship). This two-way systemic ethical relationship is close to the Maori view of Kaitiakitanga; a relationship with the land that goes beyond a one-way (subject to object) stewardship (Edward Ellison pers. com.).

**The Emergence of Systems Thinking**

Systems thinking provides a contrast with the mechanistic approach introduced by Galileo and Newton. Mechanistic thinking works from a basis of 'analysis', by breaking up complex phenomena into parts in order to understand the whole from the properties of its parts. A systems approach looks at parts in the context of the wider whole, a system being an integrated whole whose essential properties arise from the relationships between its parts, rather than properties inherent in its parts. The emergence of systems thinking is apparent in the new paradigm of ecology and landscape ecology, and environmental management approaches such as Ecosystem Management.

In a system, cause and effect are often a loop or a web, rather than a linear chain from part to whole. An analogy of a complex system is kicking a dog versus a ball. In a mechanistic world, simply knowing all the pre-conditions and the laws of Newtonian physics can give rise to a reasonable prediction of the ball's trajectory - given a perfect kick. However, the dog is a complex system, and the result can be chaotic. Moreover, the dog has a feedback loop. Its present reaction also relates to past actions. It learns and adjusts, and some very small acts can lead to sometimes dramatic and unforeseen events.

A systems approach is associated with a number of attributes. Some of the attributes as they relate to biological ecology are outlined in Table 2.

**The paradigm shift in ecology - from Balance to Patch Dynamics**

Since the 1980s, ecology has experienced a paradigm shift with the rise in non-equilibrium ecology, and the consequent rise in both systems approaches and landscape ecology. With this new paradigm comes an acceptance of the dynamic and indeterministic (as well as probabilistic) reality of nature, together with the reality of a human dimension of influence. The classic thesis of ecology in the past revolved around the idea of 'homogeneity' of ecological systems and their tendency to maintain, and advance toward, an 'equilibrium state' (Bergandi 2000) termed 'climax' or 'maturity', and closely associated with the balance of nature ideal. The focus was narrowed even more in considering only the natural environment, without a place for human influence.

The emergence of landscape ecology in the mid 1980s brought about a radical change: the 'heterogeneity' and 'instability' of ecosystems are now emphasised, and human interactions - as part of the landscape - are treated as factors affecting ecological processes from within, rather than necessarily as outside influences of 'harm' (Pickett & White 1985, Forman & Godron 1986, Botkin 1990, Budiansky 1995, Pickett & Ostfeld 1995, Wu & Loucks 1995, Drury 1998).

The implications of this approach extend to the core of research, policy and operational management of forests and conservation lands (Botkin 1990, Budiansky...
Table 2: Attributes of systemic and mechanistic approaches to ecology

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Mechanistic/Analytical</th>
<th>Systemic/Integrative</th>
</tr>
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<tbody>
<tr>
<td>Philosophy</td>
<td>Narrow &amp; targeted</td>
<td>Broad &amp; exploratory</td>
</tr>
<tr>
<td>Perceived</td>
<td>Disproof by experiment</td>
<td>Multiple lines of converging evidence</td>
</tr>
<tr>
<td>organisation</td>
<td>Teleological/Deterministic</td>
<td>Indeterministic/Probabilistic</td>
</tr>
<tr>
<td>Causation</td>
<td>Biotic interactions</td>
<td>Biophysical interactions</td>
</tr>
<tr>
<td></td>
<td>Fixed environment</td>
<td>Self-organisation</td>
</tr>
<tr>
<td></td>
<td>Single scale</td>
<td>Multiple scales with cross-scale interactions</td>
</tr>
<tr>
<td></td>
<td>Focus on components/entities</td>
<td>Focus on processes/relationships</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>Eliminate (reject) uncertainty</td>
<td>Incorporate (accept) uncertainty</td>
</tr>
<tr>
<td>Human-Nature</td>
<td>Culture separates</td>
<td>Homo sapiens part of and embedded within</td>
</tr>
<tr>
<td>relationship</td>
<td>Homo sapiens from nature - defiles and</td>
<td>Nature</td>
</tr>
<tr>
<td></td>
<td>destroys 'pristine' nature</td>
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Decision-making  | From authority down                     | Incorporating local knowledge              |

Partly sourced from Holling 1998 & Callicott et al. 1999

Within the new ecological paradigm, there is not some ideal, 'climax' state of nature independent of humans. Humans can no longer be considered incompatible for ecological sustainability, and use and protection can be part of one approach (Botkin 1990, p156).

The rise in interest in the role of humans as integral to ecosystems is highlighted by relatively new academic disciplines, whose rise reflects the increasing demand for understanding of people within socio-ecological systems. These disciplines include human ecology (Shepard 1998) and environmental history, the latter discipline with some important contributors from Australasia (Guthrie-Smith 1934, Flannery 1994, Park 1995) along with the Northern Hemisphere work of William Cronon (1983, 1995) and Simon Schama (1995). Their work affirms the new ecological paradigm in challenging the ideal view of nature that has to date underpinned the singular conservation management of peopleless reserves.

Conclusion

New Zealand has developed an allocation model to resource management that emphasises ecological determinism, economic determinism and a utilitarian ethic toward people and the environment. The result has been a strengthening of two extreme paradigms - preservationism in the guise of peopleless reserves, and resourcism in the guise of plantation forestry that is focused on agronomic fibre production alone, independent of a social or ecological context. In some cases, planted forests have been treated as capital, and either mined or dramatically simplified. A softer resourcist approach of multiple use and sustainable yield is still practised by some forestry companies who recognise the social and environmental values of their planted forests.

Increasing numbers are questioning the allocation model due to the lack of success in achieving goals related to sustainability, as well as the problems associated with lack of integration within and between science, policy and operational management.

Emerging trends are bringing into question the assumptions underlying ecological and economic determinism. Such trends include:

- A systems metaphysics replacing a mechanistic metaphysics.
- A new ecological paradigm that is indeterministic and focused on processes over various hierarchical scales.
- Landscape ecology embedding social and economic forces within socio-ecological systems.
- Management practices that operationalise these trends, including ecosystem management, adaptive management, public participation, co-management, 'civic' environmentalism and 'policy ecology' approaches. Extension is also being redefined away from linear, top-down technology transfer, and some business practices such as The Natural Step are emerging, which recognises that the sustainability of society and economy ultimately rests on ecological processes and structures, as well as ethical principles of social equity.

These trends are important to both preservation and resourcism. They challenge the ecological basis of today's preservation management and provide the basis for management that both protects the environment and provides for humanity on the same land. It challenges the hard resourcist approach to the reality of social and environmental constraints which cannot be dismissed as being dealt with 'over there' in the conservation estate.

Two paradigms are considered particularly promising in the light of these trends: Ecosystem Management, and a modified Multiple Use and Sustainable Yield paradigm that applies a systems approach to management and is much more accommodating of local peoples' wishes than was the case in the past. The Forestry Stewardship
Council (FSC) certification process is one example of society suggesting a soft-resource approach to forest management, where people - especially local people - have a right to participate in the management of forests over the fence. FSC's explicit intent is for the inclusion of social justice as well as environmental concerns, while providing for economic realities.

Perhaps the trend which is of greatest potential significance is the growing desire for cultural identity. Tim Flannery emphasised that element as a key driver to achieving ecological sustainability in his Australia day speech of 2002 (Flannery 2002). Having identity as Australians or New Zealanders requires us to become part of this place, to manage our ecosystems and landscapes not as things separate from ourselves, but as things of which we are an integral part. This realisation is beginning in Australia, claims Flannery. Such a desire to become 'native' to this place is also happening in New Zealand. It has major implications for both the utilitarian nature as commodity view that marginalises culture, and the romantic nature as recreational preserve view that does the same. Both are symptomatic of a neo-colonial perspective on land, as commodity - or primeval perfection. To some extent the desire to belonging brings to the fore the philosophies of the indigenous people to whom both human-exclusive utilitarianism and equally human-exclusive romanticism are bewildering anathema.

The forestry profession faces a crossroads. Professions have always been about technical as well as ethical standards. Those standards were once about maintaining a sufficient quality and quantity of forest goods and services for the King's pleasure, and local needs. Then it was about standards of 'sustainable yield' and wise use so that future generations could derive as much benefit as the present generation claims. The current dichotomy of preserves and commerce segregation will meet any long-term objective. The forestry profession can either embrace it or reject it along with the preservationists, and the ecology of New England. Hill & Wang, NY.


Guthrie-Smith, H. 1921: "Tutira: The story of a New Zealand sheep station". William Blackwood & Sons, UK


Leopold, A. 1949: "A Sand County Almanac, and sketches here and there". Oxford University Press, NY


References


Co-operation necessary for industry to grow

Ian Boyd*

At ANZIF we had the opportunity to be informed and inspired on the depth, range, and potential of our industry. I want to focus on some commercial realities: in particular, the ongoing debate about how the industry could structure itself to improve overall performance.

There has been a great deal said in recent months about industry co-operation, or consolidation - the concept that an industry that fights as "NZ Inc", would have the scale, and global clout to maximize performance in the market place.

I have no argument with the concept. But I am concerned that it is in danger of becoming a popular catch-cry, a simplistic answer to complex and demanding problems. It is also important to keep things in perspective, particularly in terms of what is already being achieved. It is therefore timely and appropriate to do a short stock-take of exactly what is going on within the industry, what is achievable, and where new effort and commitment should be divested.

Of course, we must first remind ourselves that the New Zealand forestry industry was largely founded on national development principles. The great plantations of the Central North Island, the early research and development organisations such as the Forest Research Institute, and the early commercial companies, built this industry from a base of common purpose and national economic commitment. Without that investment and belief in long-term goals, we would not have an industry to argue about.

But they were much simpler times. The industry had a simple structure. The public policy and trade environment, domestically and internationally, was relatively uncluttered; commercial regulatory frameworks were relatively undeveloped.

Today, the New Zealand industry is diverse and complex. It spans virtually every form of commercial structure. Ownership patterns reflect the internationalism of the New Zealand economy. It is interwoven in the public policy and government structures of every region of the country. Its stakeholders are varied in motivation and expectation. Markets are extremely diverse, very competitive, and much more demanding in terms of quality and service. Efforts to achieve industry co-operation must reflect that complexity.

That said, we should acknowledge there is considerable activity and progress, not always visible to outsiders. I want to put in front of you three powerful cooperative streams that exist, that are adding real value, and which must continue to develop. Then I want to add two new important challenges.

Examples of industry cooperation

Log exports

First, there is a vital area of log export co-operation. I