A CONCEPTUAL MODEL OF FOREIGN INVESTMENT

A FORESTRY INTERNATIONALIZATION CASE BETWEEN NEW ZEALAND AND KOREA

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ABSTRACT

The purpose of this thesis is to explore comprehensive, strategic investment structure by examining the factor interactions revolving around the current issues which confront New Zealand forestry internationalisation in the global economic perspectives.

This thesis presents the prototype of a conceptual model of international forestry as a modified joint venture\ trust system by examining the existing institutional and legal structure. Considering the global, conceptual nature of this thesis, macro-theoretical and institutional approach were adopted instead of statistical, micro analysis.

In order to derive a micro, realistic solution from the macro, global issues, the flow of basic logic and scope of this research has been advanced progressively such as World-wide (global) --- Asia Pacific Rim (multilateral) --- Bilateral (eg., New Zealand versus Korea) --- Bilateral arrangement (eg., modified joint venture \ Trust system).

Also, basic components and scenarios which are useful to seek out alternatives were proposed to solve the current problems which face New Zealand forestry. The conceptual model which is proposed in this thesis could be tested and applied not only in bilateral but also in multilateral trade and investment relationships by modifying it to adjust to specific circumstances.

In this way, the credibility gap between the conceptual model and real world is greatly diminished. Ultimately, the conceptual model could contribute as a useful mechanism to analyse international factor mobility between resource-demanding and supplying countries.

PREFACE

" When the ' sacredness of property ' is talked of,

it should always be remembered,

that any sacredness does not belong

in the same degree to landed property.

No man made the land.

It is the original inheritance of the whole species.

Its appropriation is wholly a question of general expediency.

When private property in land is not expedient, it is unjust ".

--- John Stuart Mill (Principles of political economy 1848, p.142)

CHAPTER ONE

INTRODUCTION

1.1 Study Objectives and Background

New Zealand has traditionally concentrated on primary industry, and in particular in the products of grassland farming. In the recent decade, restructuring of the global and New Zealand economy and the declining ' terms of trade ' of agricultural products in the world market has placed renewed emphasis on looking for those uses of land in which New Zealand may have a clear competitive advantage.

The restructuring in New Zealand has placed emphasis on the long term allocation of productive resources among the productive activities in the economy. These resources are the primary resources of the economy, its labour and capital stocks and its natural resources. Reallocation of resources leads to adjustment costs and for that reason, it is more realistic for New Zealand to proceed gradually in the restructuring of its industrial and primary industry sectors.

Forestry is seen as one of those activities that can help in the restructuring process. The current trends, worldwide, in demand and supply for wood and fibre products shows that forestry has an exciting future.

Within New Zealand, forestry can form a link between the traditional primary sector and the industrial sector. Worldwide, forestry is a large industry with many multinational players and large investment capital flows.

New Zealand has the resources and the climate to be able to benefit from the predicted world wood fibre shortages. To be able to do so however, it has to become a player in the world market and it requires large investment in forestry planting and processing. The purpose of this thesis is to investigate strategic options in investment open to New Zealand in preparation for the globalization of the New Zealand forestry industry. The main emphasis in this investigation will lie on examining options for international forestry investment and the development of appropriate investment structures that will be able to attract such investment to New Zealand. The ultimate aim of this research, is to develop a strategic framework, based on the current joint venture and trust system, which will facilitate overseas forestry investment and trade.

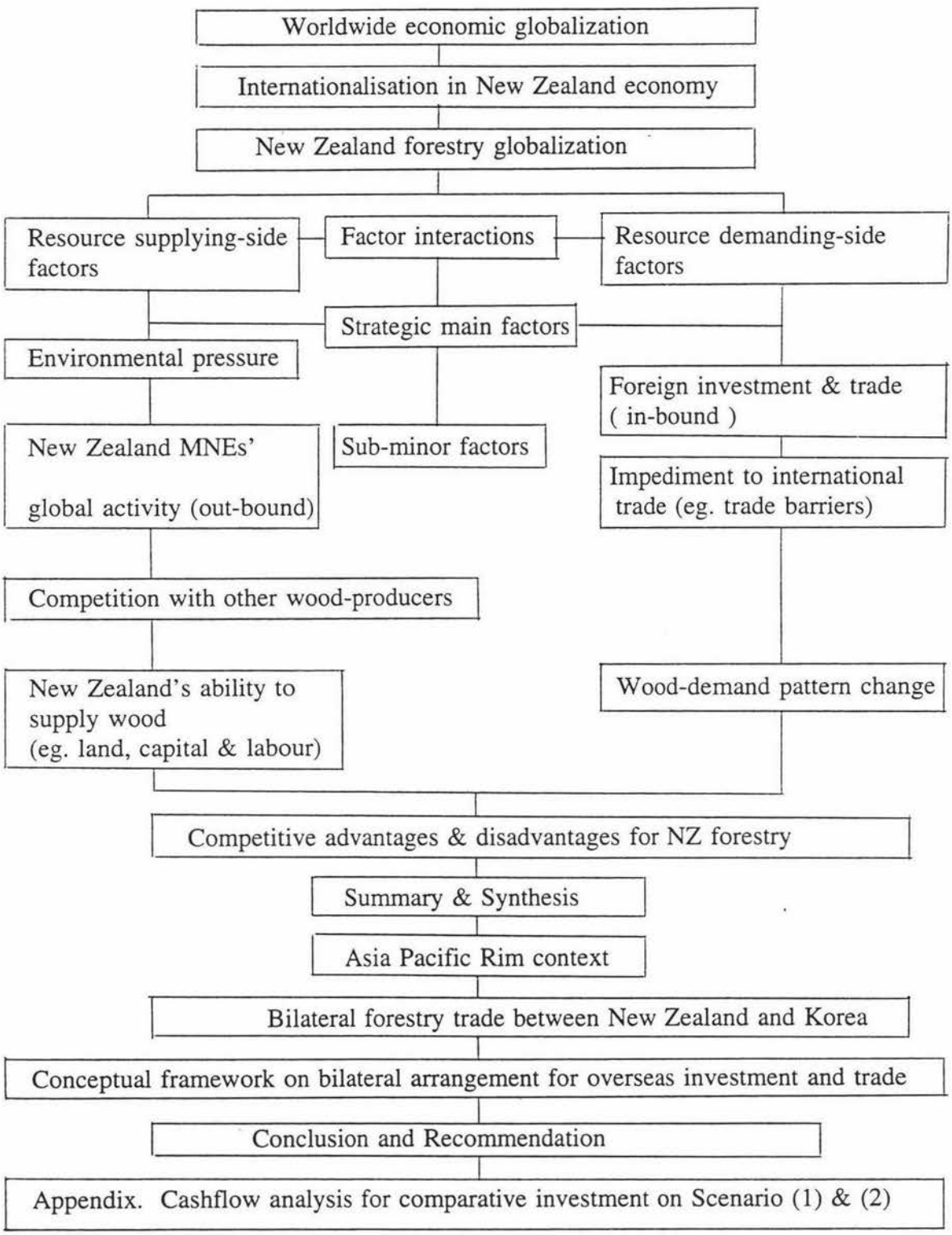
The research proposed is schematically presented in Figure 1.1.

1.2 Study Scope and the Basic Approach

The spatial scope of this research is limited to bilateral forest trade relationships between New Zealand and Korea (but set in the context of the Asia Pacific Rim countries). The main theme of the research is to focus on exploring forestry trade (especially bilateral arrangements) and investment structures to encourage foreign investment. The latter will be achieved by means of statutory and legal frameworks.

The basic approach and methodology will consist of a literature review and a critical examination of current foreign investment structures in New Zealand and the development of an alternative structure. The advantage of the proposed structure will be demonstrated with a numerical case study.

Figure 1.1 Schematic of Research Flow



1.3 Outline of the Thesis

Chapter 1 - study objectives and background, research methodology, outline of the thesis are described as an Introduction.

Chapter 2 - overviews the trend in foreign direct investment worldwide focusing on the role of Nation States and TNC (Transnational Corporations) as the main actors in the globalization of economic activity. The concept of a globalized economy and the internationalization of the New Zealand economy will be defined and discussed.

Chapter 3 - discusses the main factors and their interaction which affect globalization. The global perspective in New Zealand forestry is examined as a function of resource-demand and supply. Foreign investment is investigated as a main agent for forestry globalization including:

(i) the globalization of forestry trade;

(ii) the global forestry industry and New Zealand's place in it;

(iii) foreign investment in New Zealand forestry, advantages and disadvantages.

Chapter 4 - examines the Asia Pacific Rim context in general as presenting New Zealand's main trading partners and bilateral trade between New Zealand and Korea in particular. Major emphasis will be placed on forestry trade and investment opportunities in forestry between Korea and New Zealand.

Chapter 5 - investigates the legal structure of the current New Zealand joint venture agreement and trust system with an eye on developing a more suitable structure for foreign investment in forestry.

Chapter 6 - draws conclusions and makes recommendations on possible actions that could be taken.

Appendix - explained in detail on research assumptions of Scenario (1) and (2) for cashflow analysis in chapter 5.

* Note) The male pronoun has been used throughout the thesis for stylistic reasons only. It covers both the masculine and feminine genders.

CHAPTER TWO

WORLDWIDE TRENDS IN FOREIGN DIRECT INVESTMENT AND ECONOMIC GLOBALIZATION

2.1 Overview of Economic Globalization

This chapter focuses on the trend in foreign direct investment (FDI) which is a major element in international factor mobility and in shaping the global economy. In this overview of FDI and economic globalization, the actions of ' Nation States ' and TNC will be considered. The chapter concludes by looking at policy implications of the present tendencies in the economic globalization in connection with New Zealand forestry internationalization.

It is often pointed out that we are at the outset of a global shift and internationalization of economic activity. Internationalization is one potential strategy that is being used increasingly by business firms. This strategy can contribute to both parts of the firm's profit equation. On the one hand, expansion and increased penetration of international markets through foreign direct investment (FDI) increases revenues, while on the other hand, location of production in countries where some, or all, of the factors of production can be acquired at lower relative cost contributes towards the minimization of the cost element in the profit equation.

Markets can be extended into new geographical areas and lower cost production locations can be utilized only if geographical distance can be overcome without excessive cost and if the dispersed operations can be coordinated and controlled.

Today, the main actors who decide the competitive production locations are typified by the rise and maturity of the Transnational Corporation (TNC) (or MNEs: Multinational Enterprise) and Nation States. But this development has only been made possible through the presence of enabling technologies --- such as transport, communication and organization.

The development of the TNC and of the internationalization of economic activity can be explained in a variety of ways and at a variety of levels. At the micro-scale of the capitalist system as a whole an explanatory framework based upon the internationalization of the circuits of capital is especially useful because it emphasizes the complex interconnections between the three major circuits of money, and productive and commodity capital.

British economist John Dunning(1980) has put forward a framework which attempts to integrate various strands of explanation of international production. Dunning proposes a set of three general and interrelated principles which are fundamental to an understanding of international production. The three principles themselves are derived from a variety of theoretical approaches - the theory of the firm, organization theory, trade theory and location theory. Dunning labels his approach ' eclectic '.

According to Dunning's eclectic paradigm, a firm will engage in international production if three closely related conditions are satisfied : 1) ownership-specific advantage 2) internalization of markets, and 3) location-specific factors. That is, firstly, a firm possesses certain specific advantages not possessed by competing firms of other nationalities (ownership-specific advantages) and such advantages are most suitably exploited by the firm itself rather than by selling or leasing them to other firms. In other words, the firm internalizes the use of its ownership-specific advantages. In the second place, internalization of markets is, a most important element in explaining the existence of the TNC. Thirdly, it must be more profitable for the firm to exploit its assets in overseas, rather than in domestic locations. That is location-specific factors play an important part, in combination with the internalization of ownership-specific advantages, in determining whether or not--and where---- overseas production occurs (Dicken, 1992).

This micro-scale approach is sufficiently broad to incorporate the diversity of international production and, in particular, to explain the widely differing firm sizes and international sourcing of inputs.

Dunning's pioneering study of U.S. FDI (Foreign Direct Investment) in Britain(1958) identified that the foreign firm often had monopolistic or monopsonistic advantages, sometimes derived from superior technology or management skills. Some of these anti-competitive (ie., monopolistic or monopsonistic) advantages stemmed from cost reduction opportunities.

For example, the transaction costs incurred in intermediate product markets in moving goods or factors between countries can be reduced by internalizing these market within the firm. The idea of reducing costs through internalizing markets, both for inputs and for the distribution of outputs, is the basic rationale for ' the horizontal integration ' of firms. However, it is hard to explain the dominance of MNEs solely on the basis of a theory of market internalization except in particular sectors (eg., oil industry etc.).

Why then do firms internationalize ? The fundamental reason appears to be to enhance the firm's overall competitive position. Development in the technologies of production and in the space-shrinking technologies of transport and communication have greatly intensified competition at the global scale. Hence, the pressure on firms to operate globally have also intensified. The decision to internationalize is a major strategic decision.

Some of the most influential ideas on a firm's competitive strategy have been developed by Michael Porter (1985). According to Porter, business firms seek to achieve a competitive advantage in their particular industry through the pursuit of one of three ' generic ' strategies 1) Cost leadership: being the lowest-cost producer of a good or service 2) Differentiation: being different from competitors in some way or other 3) Focus: applying either of these two strategies on a broad or a narrow front (ie., cost focus or differentiation focus).

The latter is generally known as a niche market strategy and may apply to a specific geographic market, a particular segment of a production process or a particular type of customer.

In the final analysis, however, any explanation of a firm's internationalization must be based upon the particular circumstances of time and place and on the type of economic activity involved. In order to explain why firms internationalize, ultimately it is necessary to develop an explanatory framework which combines both general elements of the way in which the system as a whole operates and specific elements of the behaviour of particular firms. We need an approach which incorporates both because all investment and location decisions, at whatever geographical scale, are a mixture of both generality and uniqueness (Dicken,1992).

As the firms increasingly become internationalized, the importance of trade is progressively replaced by the centrality of investment relations between nations, such as FDI (Foreign Direct Investment) which acts as the organizing principle of the system.

In the following section, FDI and its role as a main transmitter of economic globalization will be discussed.

2.2 Trends in Foreign Direct Investment (FDI)

2.2.1 Definition of FDI

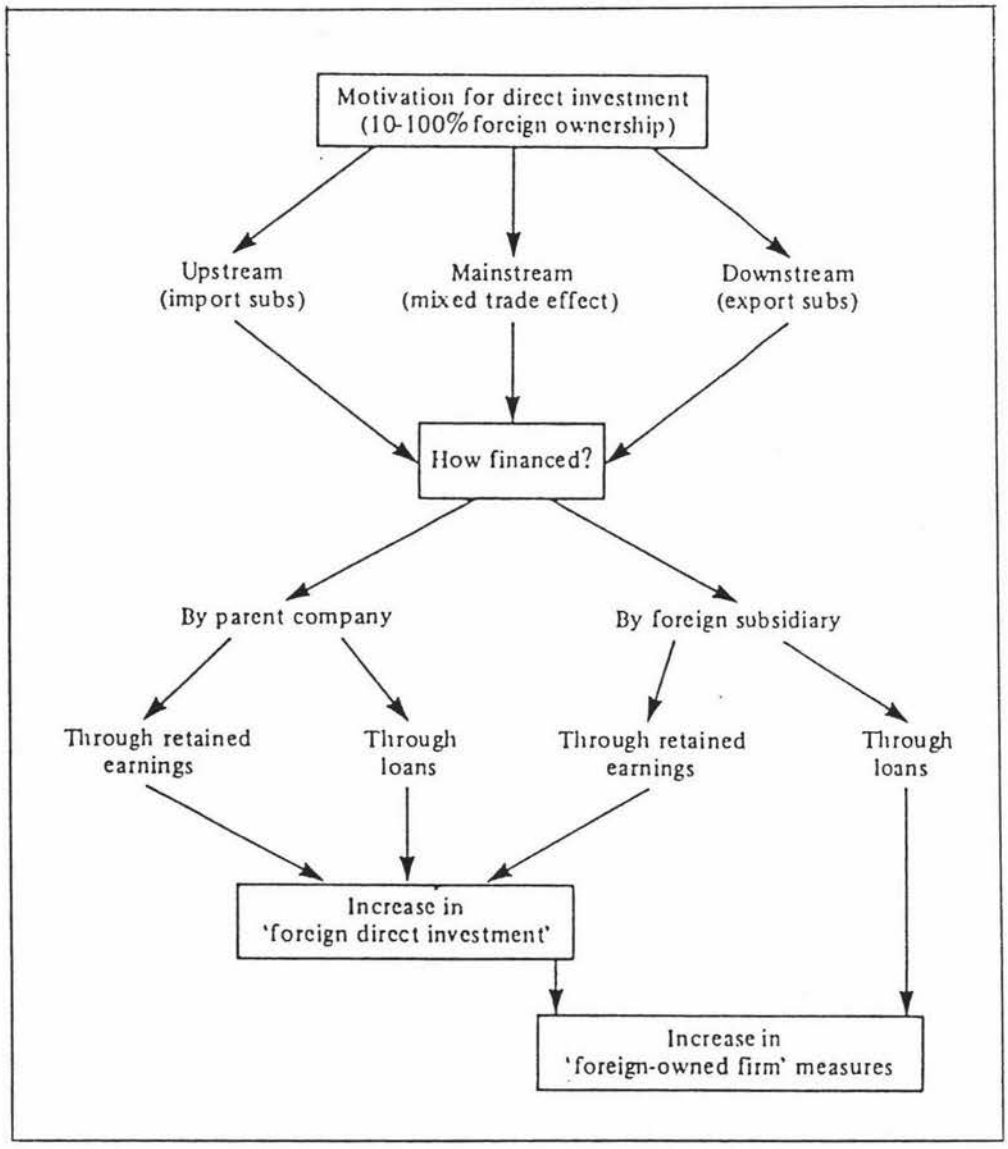
Before exploring the trend in FDI, it is important to be clear about what is and what is not included in the general definition of FDI. The most widely accepted definition is that provided by the IMF(International Monetary Fund): " direct investment refers to investment that is made to acquire a lasting interest in an enterprise operating in an economy other than that of the investor, the investor's purpose being to have an effective voice in the management of the enterprise " (IMF 1977).

Kojima (1978) argued that a primary objective of foreign direct investment is to continue attempts to extend free trade all over the world. The contribution of FDI is to enable each country to achieve its industrial potential, thus achieving an industrial structure in which an equilibrium is reached along the lines of comparative advantage. With all countries producing according to their comparative advantage, the stage is set for prosperous free trade among the nations.

In order to define FDI more clearly, Julius(1992) has drawn up a schematic of FDI (Foreign direct investment) and FOF (Foreign owned firms) measures which is presented in Figure 2.1.

The lower part of Figure 2.1 shows how the data from ' balance of payment ' sources and surveys are related to the concepts of FDI and FOF measures. Because FDI is a ' balance of payment ' measure, the method of its financing is relevant.

Figure 2.1 Schematic of FDI and FOF Measures



Source : Julius (1992), Global Cos. & Public policy

If the finance comes from the (foreign) parent company, regardless of whether the parent uses its retained earnings or raises new money through bank loans or equity issues, a capital flow crosses the border and it is classified as FDI. In addition, the domestically financed expansion of a foreign subsidiary through its retained earnings is included in FDI for most countries even though no actual cross-border movement of funds has taken place. If the subsidiary itself borrows on the local capital markets, the transaction has no balance of payments impact, and therefore is not counted as part of FDI. Such actions are included in the FOF(Foreign owned firm) measures.

In the advanced economies of the OECD(Organization for Economic Cooperation and Development), foreign direct investment relating to national economy aggregates and its linkages across economies of the growing stocks of FOF(foreign owned firms) now accounts for a significant share of domestic output, employment and investment, as well as trade. Unlike short-term and discrete patterns of trade, these FDI flows represent long-term stable commitments by companies to build viable businesses in one another's market, and it will be established as a new linkage pattern for international economic integration.

As shown by its real growth rate, FDI will become the new dominant pattern for world capital flows by replacing traditional trade in foreseeable future : while world trade volumes grew at a compound annual rate of 5% only between 1983 and 1988, global FDI increased by over 20% per annum in real terms over that period.

2.2.2 Trends of Foreign Direct Investment

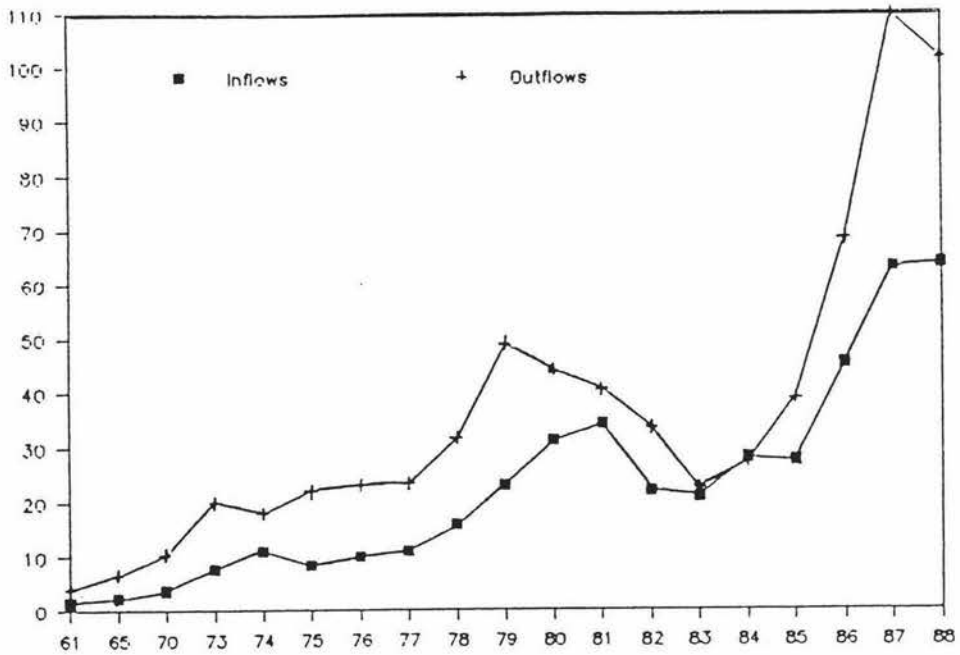
Julius (1992) analyzed the trends in FDI relying mostly on aggregate figures across sectors using home-currency data for each country and making inflation-adjusted comparisons over time.

Two-thirds of the total world stock of FDI is held by just three countries: the U.S., U.K. and Japan. If Germany and France were included, this would provide a better base for future work if indications are borne out that Western Europe will be the most active field for FDI flows over the next few years. This five-country (Group-5) sample accounts for more than three-quarters of the total stock of foreign assets held by the OECD countries.

It is useful to set the development of G-5 FDI during the 1980s into its broader historical and geographical context. Figure 2.2 shows annual aggregate flows of FDI into and out of the G-5 since 1961. The wave pattern of surges and retrenchments is evident at this aggregate level as are the extreme heights that have been reached in the last few years.

The pattern of FDI in the 1980s is one of strong and sustained recovery after a fall in the early part of the decade due to worldwide recession and aftermath of the second oil shock. In real terms, FDI outflows from the G-5 in 1988 were nearly 40% above their previous peak of 1979.

Figure 2.2 Aggregate Outflows \ Inflows of FDI by the G-5 (US$ bn)



Source : Julius (1992), Global Cos. & Public policy

Figure 2.2 also illustrates the relationship between inflows and outflows of FDI among the G-5. Over the whole period since 1961, FDI into the G-5 countries has amounted to over half of the FDI they provided to the rest of the world. In other words, these five countries are not only major outward investors, they are also (with the exception of Japan) major recipients of inward investment.

As shown in Table 2.1, the United States and United Kingdom --- the world's largest direct investors --- have recorded increase a real terms of over 15% per year over the past five years.

Japan and France, starting from much lower bases, have increased their FDI at more than 30% per year.

Table 2.1 FDI Outflows by the G-5

(compound annual growth rates, valued in domestic currency)

	FDI flows 1983–8		FDI stock* 1988
	Nominal (%)	Real (%)	($ bn)
United States	24	20	324
United Kingdom	22	16	184
Japan	39	37	114
Germany	18	15	78
France	39	32	57

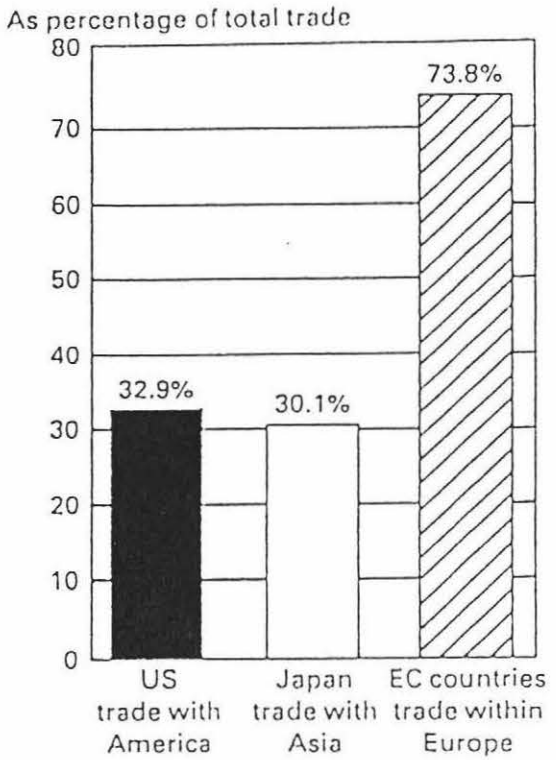
*For consistency across countries, the stock is taken to be the cumulative FDI outflow over the period 1961–88.

Source : Julius (1992), Global Cos. & Public policy

Hirst & Thompson (1992) identified that despite some volatility in the overall trends, the three main bloc powers (if EC were designated by UK, Germany & France), appear to be locked together in a certain way. These points are reinforced if we look at the structure of trade within the blocs. Figure 2.3 shows the percentage of total trade that each bloc leader conducts with its immediate client countries in 1990.

Clearly, the most integrated bloc on the trade front is the EC, with nearly 74% of its trade activity being conducted with other European countries.

Figure 2.3 Intra-Continental Trade 1990



Source : OECD 1992

The U.S. and Japan do not trade to such an extent with their natural 'bloc associates'. Indeed, at 33% and 30% respectively, intra-bloc trade is small. It is necessary for the U.S. and Japan to look to the wider international environment for their trading partners by reinforcing their mutual commitment to a more ' open ' trading environment.

Contrary to popular perceptions, particularly in the developing countries, most FDI is circulating with the G-5 countries. During the 1980s this pattern has intensified; the ratio of G-5 inward investment to G-5 outward investment has risen to 75%.

Meanwhile, not only have the less developed countries (LDCs) shared disproportionately little in the FDI boom of the 1980s, the absolute amount of FDI into the LDCs has actually been lower in real terms in the 1980s than it was in the 1970s --- although there is some very recent evidence that an upturn may be on the way.

Generally speaking, the policy climate for inward investment has actually improved in many of the LDCs during the last five years, while the inflows themselves have declined. There seems to be a growing recognition by the developing countries that FDI can be an attractive vehicle for the transfer both of financial resources and of technology. However, many of the policy changes towards FDI implemented in the LDCs address the problems of the 1970s rather than the opportunities of the 1980s. The biggest growth area for FDI in the 1980s has been in the service sectors (eg., banking, insurance, transport, telecommunication) (Table 2.2) but the LDC's economies are still too riddled with restrictions, price distortions and public monopolies to accommodate such sectors.

However, a major exception to the disappointing trend of falling FDI into the developing countries is the Eastern Asian area. Both the newly industrializing economies (NIEs) --- Korea, Taiwan, Singapore and Hong Kong --- and the Asian countries have achieved remarkably high rates of economic growth during the 1980s. Korea and Taiwan have liberalized their historically restrictive policies towards inward investment, while Hong Kong and Singapore have long courted foreign capital.

Table 2.2 The Share of Services in Total Outward FDI

(% of total stock)

	1980	1988	Change
Japan	25	58	33
US	33	41	8
UK	38	39	1
Germany	31	31	0
France	44	40	−4

Source : Julius (1992), Global Cos. & Public policy

This policy stance, coupled with their proximity to Japan --- the fastest growing international investor --- has led to a major expansion of FDI flows into the area in recent years.

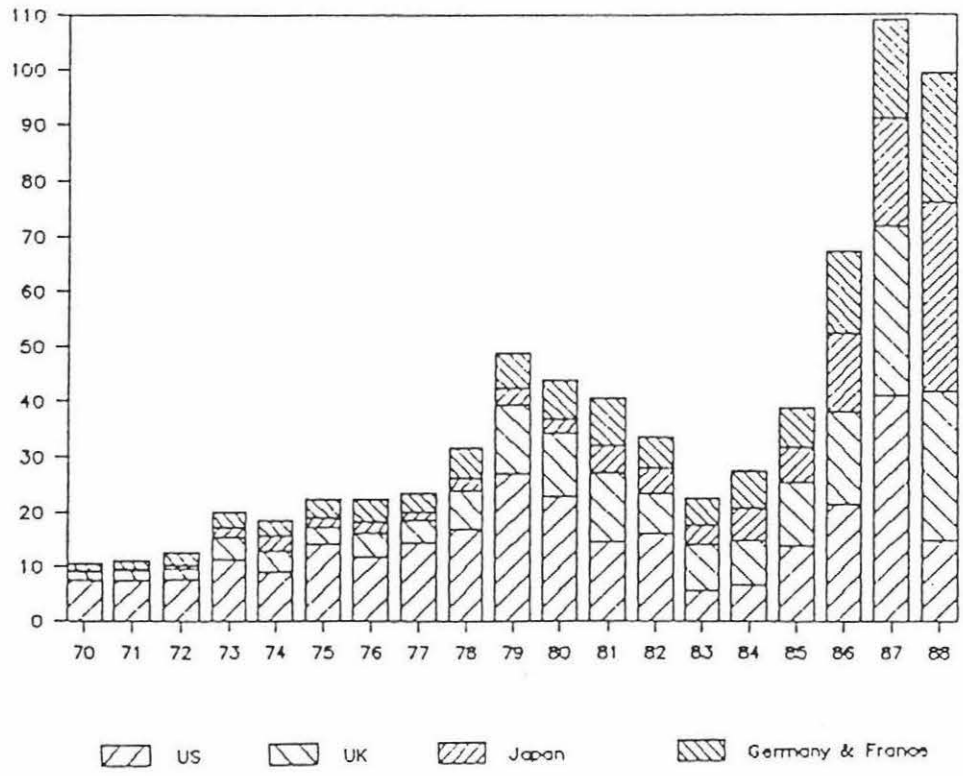
This Asian Pacific Rim context has important implications for this study because the Asian Pacific Rim is becoming a major determinant for future investment flows and orientations for New Zealand.

With a few notable exceptions, then, the upsurge of FDI in the 1980s has come from and gone into the OECD countries.

We have already seen in Table 2.1 that all of the G-5 countries contributed to the rapid increase in FDI flows since 1983. Figure 2.4 illustrates the country composition of G-5 FDI since 1970.

Individual country data show a strikingly similar pattern over an even longer period, with outward flows peaking around 1973 and 1979-80, then plummeting during the oil shocks to reach nadirs in 1974 and 1982-3.

Figure 2.4 FDI Outflows from the G-5, by Country (US$ bn)



Source : Julius (1992), Global Cos. & Public policy

An examination of cross-country and cross-sector data revealed that two other changes in the regulatory and policy environment have been particularly important in stimulating FDI flows. The first is the liberalization and deregulation of the service sectors that begun in the United States.

The second has been the emergence during the 1980s of the current account surplus in Japan. The net result of these economic and potential forces for Japanese FDI has been to increase its growth rate during the 1980s to more than double the rate achieved in the 1970s. Furthermore, this rate has been accelerating in the last few years. Since 1983, Japanese FDI outflows have virtually doubled every two years promoting Japan from seventh place in the league of international direct investors in 1980 to third place (after the US and UK) by 1987. MITI (Japan's Ministry of Trade & Industry) predicted that Japan's FDI would grow by 14% annually to the year 2000. It is predicted that Japan will overtake the UK, in terms of its total FDI stock in the mid-1990s.

2.2.3 Projection of Future FDI

The FDI flows themselves are too volatile from year to year to make simple extrapolations. Yet, using aggregate data for the G-5 countries including several business cycles over the 25-year period 1963-88 inclusive, Julius (1992) has tested the correlation between real FDI growth and real GNP growth statistically.

The following regression equation was derived from this data.

FDI = -0.06 + 3.44 GNP

where FDI = per cent change in real FDI by the G-5

GNP = per cent change in real GNP of the G-5

This equation suggests that a 1% increase (decrease) in real GNP coincides with a 3.4% increase (decrease) in real FDI. In other words, FDI growth mirrors GNP growth but has increased over three times as fast since the early 1960s. When the same regression is separately for two sub-periods, the GNP coefficient increases from 3.01 in 1963-79 to 3.65 in 1979-88, a statistically significant change. This reflects the stronger upsurge in FDI, relative to the growth of income, during this decade.

Julius (1992) assumed three underlying assumptions which form the basis of the above quantification. First, the complex of factors motivating FDI flows are assumed to be similar to those driving trade flows. Second, the years of FDI ups & downs coincide with trends in economic growth and recession in the advanced economies. Third, the political climate surrounding FDI during the period through 1995 will be as open, on average, across countries as it has been during the past decade. These findings simply represents a scenario based on an explicit set of assumptions not a projections.

The implication of the above assumptions for the scenarios is that FDI will be primarily market-driven, flowing more strongly to those countries which offer greater market potential in terms of both market size and of growth prospects. That is, those countries whose industries conduct relatively little of their commercial activities abroad are likely to exhibit more rapid rates of outward FDI growth than those countries whose industries are already well diversified.

Thus, the potential of FDI flows is more plausible in promising LDCs or developing countries than in already highly developed economies (Julius, 1992). This conclusion is in contrast to Hirst & Thompson's(1992) viewpoint, which is pessimistic about global economic integration and the future of LDCs.

This pattern of rapid expansion of the FDI stock induced by a moderate growth (in fact, a deceleration from recent trends) of FDI flows reflects the contention that we are in the middle of a decade (1985-95) when FDI gains its maturity as a major force for international economic integration. It is in this sense that quantitative increases in FDI flows have reached threshold where they create a qualitatively different set of linkages among advanced economies.

2.3 The Main Actors and Their Role in Economic Globalization

The trends in FDI and its prospect were reviewed in the previous section. This section will focus on the main actors' roles (ie., Nation States & TNC) and their interactions, all in relation to New Zealand's forestry internationalisation.

2.3.1 Main Actor's Role

2.3.1 (a) Nation State (eg., Government)

The actions of Nation States form a most important element of the environment within which Transnational Corporations operate. Their policies on investment and trade are highly significant factors in the shaping of the global system in which TNCs operate and pursue their profit-based objectives.

The upshot of internationalization and the accompanying volatility of markets however, has been to limit the effectiveness of the strategies of national economic management development since the 1930s. It might appear that national macro-economic management has ceased to provide a viable means of steering national economies in an internationalized system and that the Nation State has lost its salience in the face of ' globalization ' and supra national economic blocs (eg., EC).

Contrary to the above opinion, Hirst & Thompson (1992) argued that this conclusion would be superficial: technical macro-economic management is less important, but the role of government as a facilitator and orchestrator of private economic actors remains strong.

States are not like markets, they are ' communities of fate ' which tie together actors who share certain common interests in the success or failure of their national economies. In this context, Hirst & Thompson (1992) enumerated the following three key functions which stem from the State's new role as orchestrator of an economic consensus within a given community :

(i) " The State if it is to influence the economy must construct a distributional coalition, that is, it wins the acceptance of key economic actors and the organized social interests representing them for a sustainable distribution of national income and expenditure which promotes competitive manufacturing performance.

(ii) Such a distributional coalition is only possible if the State performs another function, that is the orchestration of social consensus.

(iii) The State achieves an adequate balance in the distribution of its fiscal resources and its regulatory activities between the national, regional and municipal levels of government " (Hirst & Thompson 1992, p.373).

In short, they emphasized that Nation State can play an intrinsic role different from TNCs or market mechanism.

2.3.1 (b) TNC (eg., Transnational Corporation)

A major consequence of a globalizing international economy would be the transformation of MNCs into Transnational Corporations (TNCs) and with them becoming major players in the world economy. Julius and Ohmae (1990) considered this trend toward true TNCs to be well established. Such ' Stateless ' corporations are now the prime movers in an interlinked economy (ILE) centred on North America, Europe and Japan. Macro-economic and industrial policy intervention by national governments sometimes are likely to distort and impede the rational process of resource allocation by corporate decisions and consumer choices on a global scale. Such corporations will pursue strategies of ' global localization ' in responding on a worldwide scale to specific regionalized markets and locate effectively to meet the varying demands of distinct localized groups of consumers.

The TNC not only directly controls and coordinates its own complex internal network at an international or a global scale but also indirectly controls many of the externalized networks in which it is embedded. This means that TNCs can play the dominant role in the world's production networks (Dicken, 1992). The precise form and articulation of production networks, however, are also determined by the actions of Nation States as they pursue policies of trade management and attempt to impose performance requirements on international firms operating within their territories. Thus, the shape of the global economy is the outcome of the complex interplay between the strategies of TNCs and Nation States set within the context of technological change.

2.3.2 Non-Economic Factors for Economic Globalization

Economic globalization has been explained, so far, in terms of FDI and the role of Nation States and TNC. These can be called economic factors. There are, however, also non-economic pressures which impact on globalization. Here we can recognise centrifugal forces which constrain and centripetal forces which stimulate globalization.

The major examples for centrifugal factors for globalization are the differences in socio-economic, cultural and institutional factors among the countries which acts as an invisible barriers in constraining global integration.

" It is difficult to see how this discrepancy between national experiences and institutional legacies can be eliminated. For example, countries like USA cannot just decide to adopt the more solidaristic and coordinative relations between industry, labour and the State characteristic of Germany and Japan. This means that between blocs and within blocs there will be fundamental differences in the ability to respond to competitive pressures and changing international conjunctures " (Hirst & Thompson, 1992 p.374). Also, Ostry (1992) identified that the discrepancy between national experiences and institutional legacies is unplanned, stemming from a variety of historical, institutional and cultural factors in the context of the U.S. and Japan bilateral approach.

How to bring about change in order to adapt for globalization, particularly in the area of ' cultural, political, institutional environment of economic agents ' is more difficult to prescribe because these intrinsic elements have been cumulative and deep-rooted for long periods in each country. It is therefore, particularly dangerous to make broad, sweeping generalizations about the effects (eg., costs & benefits) of TNCs, because the situation has become vastly more complex in today's highly interconnected global economy. TNCs are not only extremely significant transmitters of economic change but also of social, cultural and political change.

Julius (1992), on the contrary argued that such socio-cultural differences in an integrated world economy can be a driving force for trade and investment. There is bound to be competition between systems which, over the short term, creates profits opportunities for FOFs (Foreign owned firms) and stimulates FDI. Over the long term, it also produces pressure for policy convergence.

Julius (1992) points out that there are also centripetal forces which stimulate globalization such as technological change or socio-political development (eg., democratization in LDCs etc.). Technological change & innovation policy, in particular, can play a salient role in globalization. It is at the dynamic heart of economic growth and development and fundamental to the evolution of a global economic system. Revolutionary developments in clusters of technologies alter not only products and processes in one industry but also pervade the entire socio-economic system.

Technological change, in itself, however, is not deterministic and it should not be assumed that a particular technology will lead inevitably and irrevocably to a particular outcome (Dicken 1992).

Considering the above centrifugal and centripetal forces for globalization, it can be easily seen why socio-economic factors are so important when one looks at the development model in the NICs. When one looks at the NICs in detail it is clear that specific internal circumstances have indeed been extremely important in the development process. It is more realistic, therefore, to regard the development process as an interplay between external and internal forces.

2.4 Implications & Future Scenario

In the previous sections, the concept of a globalized economy was defined and current trends in the international economy wer assessed to demonstrate the development of the concept.

This section looks at the impact and future prospect of global economic integration by synthesizing the different viewpoints held on the ' global economy ' by a variety of people.

Trade blocs are at an initial stage of formation. Even the most advanced, the EC, is unlikely to become a super state capable of exploiting the potential of a continental scale of organization. At present, whether blocs will come into conflict and radically weaken the current liberal regime of trade between the advanced industrial economies is still an open question but it appears to be an unlikely development. This especially so in light of the currently concluded GATT (General Agreement on Tariffs & Trade) agreement.

Globalization seems to be a conflictive dynamism between centrifugal and centripetal forces. The resulting outcome for globalization depends on which forces will prevail and dominate. The new role of Nation State and TNC as a main actor for globalization will be reestablished through the interactions.

At present, it seems that an expectation of rapid and overall globalization such as political, and monetary integration (eg., Danish vote against the Maastricht Treaty in EC) is pessimistic and premature while gradual and progressive change involving a group of like-minded countries which have similar socio-economic, cultural background and geographical affinity is more realistic and plausible.

It seems that, at this stage, the eclectic paradigm (eg., modified multilateralism) will be dominant for globalization as a transitional form. We are just on the threshold of historical process of dynamism between the two conflictive forces which impact on globalization. In order to forecast the development of the international economy as a whole in the context of the relationships between the super-blocs \ countries, the following global map is envisaged by Hirst & Thompson (Table 2.3).

Two scenarios are used in Table 2.3 to organize the discussion. The first of these is protectionism \ bilateralism designated by ' A '. This scenario sums up one of the possible forms of development for the main economic players and the international system as sketched below. The other scenario is multilateralism \ deregulation. This is meant to sum up a broad continuation of present policies, which have been designated as ' modified multilateralism ' in the above discussion. This particular scenario is designated as ' B ' in the effects impact column.

Table 2.3 Super-Blocs & Sub-Blocs : the Overall Position

Country groupings	Impacts	
	A	B
(1) EC \ EFTA	Neutral	Positive\neutral
(2) NAFTA \ USA	Neutral	Neutral\negative
(3) CIS(ex-USSR)	Positive	Negative
(4) Japan & SE Asia	Negative	Positive
(5) LDCs	Negative	Neutral\negative
(6) Cairns group	Negative	Neutral\negative
(7) China	Positive ?	Neutral\negative
(8) Eastern Europe	Neutral\positive	Negative

Note) * A : Protectionism \ bilateralism

B : Multilateralism \ deregulation

Source : Hirst & Thompson , 1992

Among the above country groupings in Table 2.3, No.4 (Japan & SE Asia including NICs) and No.6 (Cairns group including New Zealand) are important for this research and can be described as follows:

No.(4) Japan & SE Asia (NICs) : The major problem for these countries is that they are highly reliant upon international trade for their prosperity. The recent upsurge in FDI from these countries is a good example of a strategy to reduce the risk due to down-turn in world trade.

No.(6) Cairn Group : This is a group of advanced agricultural and primary producers. The long-run destiny for these countries is generally problematic since they tend not to meet the criteria for effective national economic management. They still specialise in primary products and have little comparative advantage in any other commodities. They are subject to large cyclical swings in their ' terms of trade ' because of being very dependent upon the prosperity of the major manufacturing countries. These characteristics make them vulnerable to the vagaries of the international market.

The comparative advantage theory which rests on natural endowment is still an important starting point in international trade. In real world, however,--- and especially in the trading relationships between the industrialized countries and the primary-producing countries--- these conditions do not hold.

The price of manufactured goods tends to increase more rapidly than those of primary products and, therefore, ' the terms of trade ' for manufactured and primary products tend to diverge. For ' terms of trade ' do indeed fluctuate over time, there is no doubt that they have been undermining for the primary producing countries.

A similar reasoning is presented in the Porter project on New Zealand (Michael Porter, Crocombe & Enright 1991). The Porter report showed that New Zealand exports can be broadly categorised as lower growth market segments.

New Zealand production tends to be based in primary industries that have low barriers to competitors' entry and are politically vulnerable as other governments protect and support their domestic producers and markets. According to their argument, changes in the composition of world trade have resulted in changes in the fundamental dynamics of trade. Porter & et als(1991) state : " We need systematic changes to better align our economy with the requirements for success in the modern world. In today's global economy, success is a function of a nation's ability to develop competitive advantage in advanced industries and industry segments rather than its ability to exploit comparative advantage of inherited endowments of factors of production. It is these organizational and institutional forces which are creating global shifts in economic activity and redrawing the global map.

Comparative advantage is not simply ' given ' ; it is created and recreated by ' human action ' (Michael Porter et als., 1991, p.26)".

The principal contribution of the Porter project lies in identifying the underlying forces governing New Zealand's economic performance and subjecting them to analytical scrutiny in an international setting. Their more detailed and specific prescriptions relate, in the main, to a change of attitudes on the part of New Zealand firms. Exactly how to bring the changes about, particularly in the area of attitudes or ' culture ' of economic agents, is more difficult to prescribe as these intrinsic elements have been cumulative and deep-rooted for long periods in New Zealand (Chatterjee, 1992).

2.5 Globalization and its Interactions in New Zealand Economy

In previous sections, FDI was examined by observing the actions of Nation States and TNC as main actors in economic globalization. In this section, the internationalisation of New Zealand economy and its business activity through restructuring will be discussed. This discussion will be followed in the next chapter with an overview of the internationalisation of the New Zealand forestry industry.

The term ' internationalization of economy ' is used in a descriptive sense to include several processes :

--- the move to off-shore investment and production sites by national capital

--- the serving of local markets by production units owned or controlled by overseas based producers

--- the degree to which local economic activity is affected by global capital flows and production systems

--- and the extent to which domestic macro and micro-economic policy is shaped by external conditions (Britton, 1991; Fagan,1990; Le Heron,1991).

These processes are increasingly tying individuals, companies and government into production, trading and financial networks outside New Zealand.

Internationalization has several different roots. Beneath the observed trade patterns is a steady reorganisation of purchasing, production, distribution and marketing activities which alter the way in which producers in an economy operate and draw upon labour for various activities. Such reorganisation springs from the adjustments of companies and institutions seeking to maintain or improve performance in the context of global pressures.

Since the 1960s, a growing international tendency has been for firms to expand the geography of their production activities. This is a two-way process : Firms from abroad (ie., inbound) and New Zealand investment in off-shore investments (ie., outbound).

In the 1980s, there were important ties between New Zealand restructuring and the global economy. Government policy that deregulated New Zealand's financial markets, thereby enabling money to circulate freely into and out of the nation, effectively cemented the New Zealand business environment and its actors into the orbit of the global economy. Thus, New Zealand's new regulatory environment offers new possibilities for the development of the trading link.

Share market capitalization data for 1986 showed that FOFs (Foreign owned firms), conservatively defined as those with 50 per cent or greater overseas shareholding, account for assets to the value of $ NZ 20.7 billion, or 24 per cent of the assets controlled by the country's largest 250 enterprises.

Overseas Investment Commission data indicates an influx of overseas ownership such as registration of takeovers and new business start-ups since the mid-1980.

New Zealand's financial infrastructure grew rapidly after deregulation of the financial sector. Table 2.4 shows the upsurge in private sector capital flows, including non-resident ownership of public debt.

Table 2.4 Trends in Foreign Direct Investment in New Zealand

March Years $m	Foreign Direct Investment in New Zealand	NZ Direct Investment Overseas	Non-Resident Ownership of Public Debt
1980	343	73	-
1981	204	118	-
1982	366	115	-
1983	364	604	-
1984	205	54	-
1985	456	349	-
1986	745	166	-
1987	402	949	-
1988	238	938	40.8
1989	725	226	163.4
1990	1543	1477	400.0

Source : Dept. of Statistics & Reserve Bank (1989)

Also, Table 2.5 shows the trends of foreign direct investment of the Asia- Oceania region's share of the global (worldwide) total by industry group.

Table 2.5 FDI in New Zealand by Industry (Unit:NZ$ 000)

Industry Group	1985		1986		1987		1988		1989	
	Region	Global	Region	Global	Region	Global	Region	Global	Region	Global
Not allocated	.	-422	2359	-132094					.	.
Farming,Hunting & Fishing	127	525	-84	-1669	-16	1945	-48	-8609	149	595
Forestry & Logging	.	71	.	-679			.	272	.	2
Mining & Quarrying	-0	-15850	0	193302	-0	-27510	-594	42511	-32	-68136
Food, Drink & Tobacco	602	19544	-5207	10301	-12143	56871	-1151	31681	19	16351
Meat & Dairy Products	.	9184	.	-25371	-88	8400	.	498	.	326
Textiles, Clothing & Footwear	186	8119	379	-422	3318	-9955	-128	-50641	-29	-3258
Wood, Cork & Furniture	-7	708	.	1575	.	794	.	-847	1020	-28003
Pulp,Paper & Printing	527	12439	-2171	13947	-2170	16869	67	10018	12705	106996
Leather & Rubber	-255	816	.	5767	.	2602	-521	-11934	.	-5820
Chemical & Mineral	1256	33418	55	43754	-4201	28013	1867	77501	1276	46351
Metal working	-39	11761	.	17659	54	-4852	-54	111326	-63	110471
Engineering & Transport Equipment	343	102035	117	23729	118	78556	3304	20591	-4594	1116
Miscellaneous manufacturing	795	-19694	-11	70575	1622	26592	-1031	36015	-708	19699
Building & Construction	.	16566	.	9734	489	11452	.	-42293	.	31555
Electricity,Gas & Water	.	993	.	1131	41	971	-93	1051	7	3788
Wholesale & Retail trade	2035	47988	-3222	153544	-8730	-268003	-6236	-49576	5508	194651
Banking, Insurance	28924	169101	7709	305350	-14156	426498	-80971	17034	-104506	130559
Ownership of Property	-230	46835	0	26229	.	4211	1410	23892	-240	75972
Transport & Communications	409	4232	28	1299	840	-2125	-409	11882	-258	8519
Services	3756	8005	4056	27302	28685	50389	-1060	17178	62334	83469
Total	38429	456373	4007	744964	-6337	401718	-85648	237551	-27411	725203

Source : Dept.of Statistics, 1993 Note) Region: Asia-Oceania Global: World total

Underlying the aggregate changes to the above trade and overseas investment flows are some quite dramatic developments in the organisational arrangements resulting from these flows. These are:

--- The character of each of New Zealand's main agro-commodity systems (eg., dairying, meat, wool, apples and kiwifruit) altered in the decade. In particular, the key organizations in each system internationalized, often giving greater economic strength when dealing with commercial organizations in other nations around the world;

--- The manufacturing sector can no longer be regarded as isolated from external forces behind a tariff wall and some significant trans-Tasman developments have taken place amongst Australasian centred companies involved in that sector;

--- The growth of tourism is intimately connected with the growth and marketing strategies of international tourism network (eg., hotel chain, airlines etc.);

--- ' Other services ' is a composite which is built up from the diverse activities of mainly small and medium sized firms (Perry, 1988);

--- The main exporting organizations are still found in the primary sector. The process of internationalization that was accelerated by state policy in the 1980s has affected the ways in which New Zealand's primary exports are marketed globally (R.B. Heron 1992).

Despite of these developments however, the position of New Zealand in international trade can be described as follows :

--- Global trade is dominated by three affluent markets : Europe, North America, and Japan.

--- The predominance of these markets is enhanced by the globalization of trade and the building of strategic alliances.

--- Other small high income countries generate a greater level of exports per capita than New Zealand. A larger percentage of their exports consists of high value goods to high income countries.

--- New Zealand has under-performed in global trade. Although this is partly due to its isolation, it is also because New Zealand has not done enough to change its products and processes and improve marketing. New Zealand's share of global trade has fallen dramatically from one per cent in 1950, to 0.3 per cent in 1990.

--- New Zealand is not fully participating in those areas of world trade that are growing in importance.

2.6 Final Comment

This chapter has focused on the impact and future prospect of global economic integration.

It has shown that global economic integration is a reality and for nations and companies to remain competitive they need to be part of this process.

In defining the concept of globalization and in identifying the processes and factors involved, it became obvious that FDI plays an important role as a vehicle on which economic globalization rides.

From a New Zealand perspective, its economy is also affected by the trend towards globalization.

This is occurring in several sectors of the economy eg., dairy, meat, tourism etc. but of most interest to this research, forestry.

The New Zealand forestry industry is globalizing (and more will be said about that in following chapters), this is in tune with developments worldwide and aligns this industry with the requirements of today's global economy.

In this global economy, the suitability and attractiveness of New Zealand's forests and resources will be appraised by the emerging set of increasingly international organisations that are enmeshed in a rapidly restructuring global accumulation process (R.B.Heron 1988).

This development is particularly important in New Zealand for two reasons:

1. forestry is being rapidly restructured into a global system by transnational corporations (TNCs) involved in its agro-commodity chains.
2. networks for global raw material sourcing have emerged, centred on the industrial markets of Japan & Asian Pacific Rim countries and to a lesser extent the US and EC.

However, in all this New Zealand as a player is still small in this global economic integration transformation. To be able to benefit from it fully as a country, it is important that a good understanding is obtained of the factors which impact on the globalization of the New Zealand forestry industry and that New Zealand prepares itself in terms of suitable investment structures.

Both of these topics will be taken up in the chapters following.

CHAPTER THREE

FACTOR INTERACTIONS IN NEW ZEALAND FORESTRY GLOBALIZATION

In chapter two, trends in foreign direct investment and economic globalization were discussed. In this chapter, the globalization of forestry in general and of the New Zealand forestry industry in particular will be discussed. Emphasis will be placed on the strategic factors, both on the demand and supply side, affecting the place of the New Zealand forestry industry in this development.

3.1 Strategic Factors Affecting New Zealand Forestry Globalization

3.1.1 Environmental Pressure

The question this section deals with is ' why is forestry becoming increasingly globalized ? ' The answer is related to the increasing scarcity of wood worldwide.

Wood, these days, is a renewable resource of international importance. For almost all of human existence on earth, there has been plenty of forests and few people, hence any problem in terms of wood supply, if it existed, was only local, not global. Where such problems arose, international trade has been able to solve imbalances between demand and supply. However, this situation has greatly changed and the supply problem has taken on a more global character.

The reason for the increased scarcity is related to the multi-functional characteristic of forestry. On the one hand, there is the timber resource or raw material, while on the other, there are the many non-timber services (values) provided by this resource (eg., tourism, recreation etc.).

This multi-functional characteristic has led to conflicts between the goals of environmental conservation and economic development. Such conflicts are expected to increase as scarcity increases and as peoples' environmental awareness regarding non-timber values increases.

Also, as globalization increases, environmental issues will continue to increase and spread.

In summary, environmental issue in forestry, the lesson that conservation and development strategies locally and globally are simply opposite sides of the same coin is everywhere in evidence, although disappointingly ignored by extreme proponents who have one-sided views. As forest economist Jack Westoby (1989) argued, forestry is becoming more international; one sense in which we stand today squarely in front of ' one-world forestry '. " Foresters must work to meet the needs of society, which means that they must continue to accommodate some of the demands of the environmentalists. But they must not fall into the error of assuming that the environmental lobby, as at present constituted, is fully representative of society's total needs now and in the future " (Jack Westoby, 1989, P.71).

Integration of agriculture and forestry on lands such as agroforestry could be an effective solution to relieving the pressure on indigenous forest.

In this context, New Zealand's plantation forestry programme should be rest on a sound philosophical base how to harmonize conservation and development strategies.

Table 3.1 Multi-Functional Characteristics & Uses of Forest

Forest characteristic				
Forest use	Land area	Timber stand volume	Annual growth	Annual harvest
Attractive environment	Essential	Modest stand attractive; most productive stand not required	Not very important	Generally inimical, but careful planning and operation may reduce impact greatly and may enhance appearance in some instances
Recreation opportunity	Essential	Moderate importance; open stand often more attractive than full stand	Limited value	Possible under carefully controlled conditions and on rotation; enhances recreation opportunity in some instances
Wilderness	Essential	Volume at natural maximum but actual volume unimportant	Unimportant; in practice often close to zero	Unacceptable; destroys basic value of experience
Wildlife	Essential	Kind and numbers of wildlife responsive to stand characteristics	Limited importance	Acceptable under proper controls; desirable for some species
Natural watershed	Essential	Important to have good cover, but timber volume of limited importance	Relatively unimportant	Acceptable under proper controls
General conservation	Essential	Helpful to have good cover	Relatively unimportant	Acceptable under proper controls
Wood production	Essential	Thrifty growing stand essential; too small or too large volume reduces growth possibilities	Critical for long-run rate of harvest, but growth rate also dependent upon harvest	Critical both for use of wood and for its further growth

Source: M.Clawson (1975), Forests for whom & for what ?

3.1.2 New Zealand MNEs' Global Activity

Besides the above environmental concerns, another important reason for forestry globalization is the international business activity of MNEs (Multinational Enterprises). That is, globalization is not only inbound but is also an outbound phenomenon at the same time.

The two majors, forestry companies in New Zealand, Fletcher Challenge (FCL) and Carter Holt Harvey (CHH), besides dominating the domestic forestry are also major international operators. Both have expanded rapidly, assuming that they have to be very large to survive. This, however, means that their investment decisions are based on international ROIs (Return of Investments). Thus, profits from New Zealand operations will be invested overseas if the return there is better than in New Zealand. The recent announced intention of CHH to sell its Chile forest investments means that CHH will be primarily New Zealand focused within an internationalised framework. Table 3.2 & 3.3 show the major MNEs' (eg., FCL & CHH) global business activities. A brief description of the main players follows :

* Fletcher Challenge (FCL) :

  FCL has worldwide network as forestry MNE. It has pulp & paper operations in Canada, USA, UK, Chile, Brazil and Australia etc. as a main player in forestry globalization.

Table 3.2 Major Subsidiaries in the Forest Industries Group (FCL)

FOREST INDUSTRIES GROUP	*Country of Domicile*	*% Holding*	*Principal Activity*
Tasman Pulp and Paper Company Limited	NZ	100%	Pulp & Newsprint
The Donside Paper Company Limited	UK	100%	Coated Papers
UK Paper plc	UK	100%	Fine Papers
William Guppy & Son Limited	UK	100%	Fine Paper Sales
Australian Newsprint Mills Limited	Australia	50%	Newsprint
Fletcher Challenge Productos Florestal Ltda	Brazil	100%	Management
Forestal Bio Bio S.A.	Chile	100%	Forestry Operations
New Thames Paper Company	UK	100%	Fine Papers
Papeles Bio Bio S.A.	Chile	100%	Newsprint
Pisa Papel de Imprensa Ltda	Brazil	50.3%	Newsprint
Sittingbourne Paper Company Limited	UK	100%	Fine Papers
Tarawera Forests Limited	NZ	82.5%	Forestry Operations
Tasman Asia BV	Netherlands	100%	Shipping
Tasman Asia Shipping Company Limited – Hong Kong	Hong Kong	100%	Shipping
Tasman Asia Shipping Company Limited – NZ	NZ	100%	Shipping
Tasman Chile S.A.	Chile	100%	Forest Products
Tasman Forestry Limited	NZ	100%	Forestry Operations
Tasman Investments (Netherlands Antilles) NV	Netherlands	100%	Forestry Shipping
Tasman Pulp and Paper (Aust) Pty Limited	Australia	100%	Pulp & Newsprint Sales
FOREST INDUSTRIES GROUP (NORTH AMERICA)			
Blandin Paper Company	USA	72%	Lightweight Coated Paper
Crown Forest Industries Limited	Canada	100%	Pulp, Newsprint & Lumber
Crown Paper Company Limited	Canada	100%	Newsprint Sales
Fletcher Challenge Canada Limited	Canada	72%	Pulp, Newsprint & Lumber
Fletcher Challenge Paper Company	USA	100%	Newsprint Sales
Fletcher Challenge Pulp Sales (Japan) Limited	Japan	72%	Pulp & Newsprint Sales
Norsk Pacific Marine Services Limited	Canada	100%	Shipping
Norsk Pacific Steamship Canada Limited	Canada	100%	Shipping
Norsk Pacific Steamship Company Limited	USA	100%	Shipping

Source : Annual report 1991, Fletcher Challenge

In pulp, FCL Canada have completed the modernisation at the Crofton mill on Vancouver. On completion in early 1992, operating costs has substantially reduced and capacity increased by 30 %. FCL Canada continued its expansion into production of higher value-added ground wood specialty papers and moved to widen its customer base into the US Midwest and elsewhere.

Australian Newsprint Mills increased its emphasis on production of specialty papers, completing the modernisation of the No.3 paper machine at Boyer in Tasmania, and beginning work on the No.2 machine. In Chile, Papeles Bio Bio developed new markets in the Far East and Europe and commissioned stage two of a newsprint mill upgrade, improving quality and lifting production capacity by 40 per cent.

* Carter Holt Harvey (CHH) :

CHH has substantial investments in Chile which include fishing, medium density fibreboard operations, plastic products manufacturing and an indirect holding of 30% in Copec (Compania de petroleos de Chile S.A.). During the year, Copec's Arauco forestry business built on its significant customer base for pulp and forestry products. Its output was boosted by the completion of the new US$ 600 million Arauco No.2 bleached pulp mill with an annual capacity of 350,000 tonnes.

- Carter Oji Kokusaku Pan Pacific (PanPac) (10% equity interest) :

The ownership of PanPac changed in 1991 following an agreement with Japanese partners. The company's shareholding in PanPac was reduced at that time from 60% to 10%. The company has a right, which expires in April 1993, to increase its shareholding to 50%.

Table 3.3 Major Forestry Subsidiary Companies (CHH) Shareholding

Major Forestry subsidiary companies	1991	1990
AHI Group Ltd.	100%	100%
Baigent Forest Industries Ltd.	50	50
Bestwood Ltd.	100	100
CHH Building Products Group Ltd.	100	100
CHH Forests Ltd.	100	100
CHH International Ltd.	100	100
CHH Packaging Ltd.(50% of the PRITPAC-UEB J\V)	100	-
CHH Timber Ltd.	100	100
CHH(USA) Inc.	100	100
CHH Wood Products Ltd.	100	100
Carter Oji Kokusaku Pan Pacific Ltd.	-	60
Caxton Forests Ltd.	100	100
Danband Products(Australasia) Ltd.	100	70
Fabrica Chilena de Envases S.A.	100	100
Handerson & Pollard Ltd.	100	100
NZ Forest Products(Australia) Pty Ltd.	98	-
NZFP Investments Ltd.	100	100

Source : CHH annual report, 1991

3.1.3 Strategic Factors for New Zealand Forestry Internationalisation

During the last decades, the forestry industry in New Zealand has undergone a drastic change. The history of depletion and restoration of New Zealand's forest and wood resources is in many ways a microcosm of the global scene and points to directions will need to be more widely followed if any sort of balance between development and conservation of the world's forests is to be achieved.

Table 3.4 shows that as forests expanded the industry had to become more globalized for capital and export reasons.

Table 3.4 Accumulation Conditions for Afforestation

1921 – 1931	1941 – 1951	1961 – 1971 – 1981	1989
GENERAL CONDITIONS			
Transition from laissez-faire to State Capitalism Speculative investment in resources, especially land	Increasingly regulated and closed economy Scope for growth of industrial capital	Deeper state intervention Export incentives Restrictions on ownership of resources	International circulation of capital into and out of New Zealand Standardized treatment of land based production
SECTORAL CONDITIONS			
Focus on afforestation Attractive for new entrants	Focus on utilisation Pressures for consolidation of forest ownership	Focus on afforestation 1962 Forestry Encouragment Loans 1965 Current year deductions 1971 Forest Encouragment Grant Scheme 1980 Cash refunds	Reassessment of conditions suitable for processing and further afforestation
STATE INDUSTRIES			
SFS develops afforestation	NZFS directly involved in production planning and to a lesser extent processing (eg. Waipa Sawmill)	NZFS expanding State Forests ; co-ordinating Sectoral planning via Forestry Conferences, development of forest processing,marketing and data bases, directing of biological, economic and social research	NZFS disestablished Partial privatisation of State Forests Creation of FC and NZTL

Source : M.M.Roche & R.B.Le Heron, 1993

The condensed history of New Zealand forestry can be summarised as the following major historical process :

1) state forest service established and the first planting boom (around 1930)
2) the second afforestation boom (around 1960) after the second world war
3) deregulation measures such as sale of state forest, eg., NZFS (New Zealand Forest Service)'s disestablishment etc.
4) recent forestry globalization such as foreign investment (eg., joint venture etc.).

R.B.Le Heron (1988) explored the internationalisation of the New Zealand forestry industry in the context of a global capital accumulation process. He pointed out that the few human geographers who have examined forestry have done so in orthodox terms and thereby missing the important dimensions of the dynamics of industrial forestry. " The possibility clearly exists for capital mobility, both into and out of the ownership and control of forestry operations, and into other spheres of economic activity, in New Zealand and abroad. In concrete terms, New Zealand's forests and forest-based production is integrated into the web of global processes connected with capital accumulation " (R.B.Le Heron, 1988, p.511).

It is difficult to discuss the future of New Zealand's forestry without recognising the historical context of New Zealand's past forestry development and the fundamental issues which face the industry today.

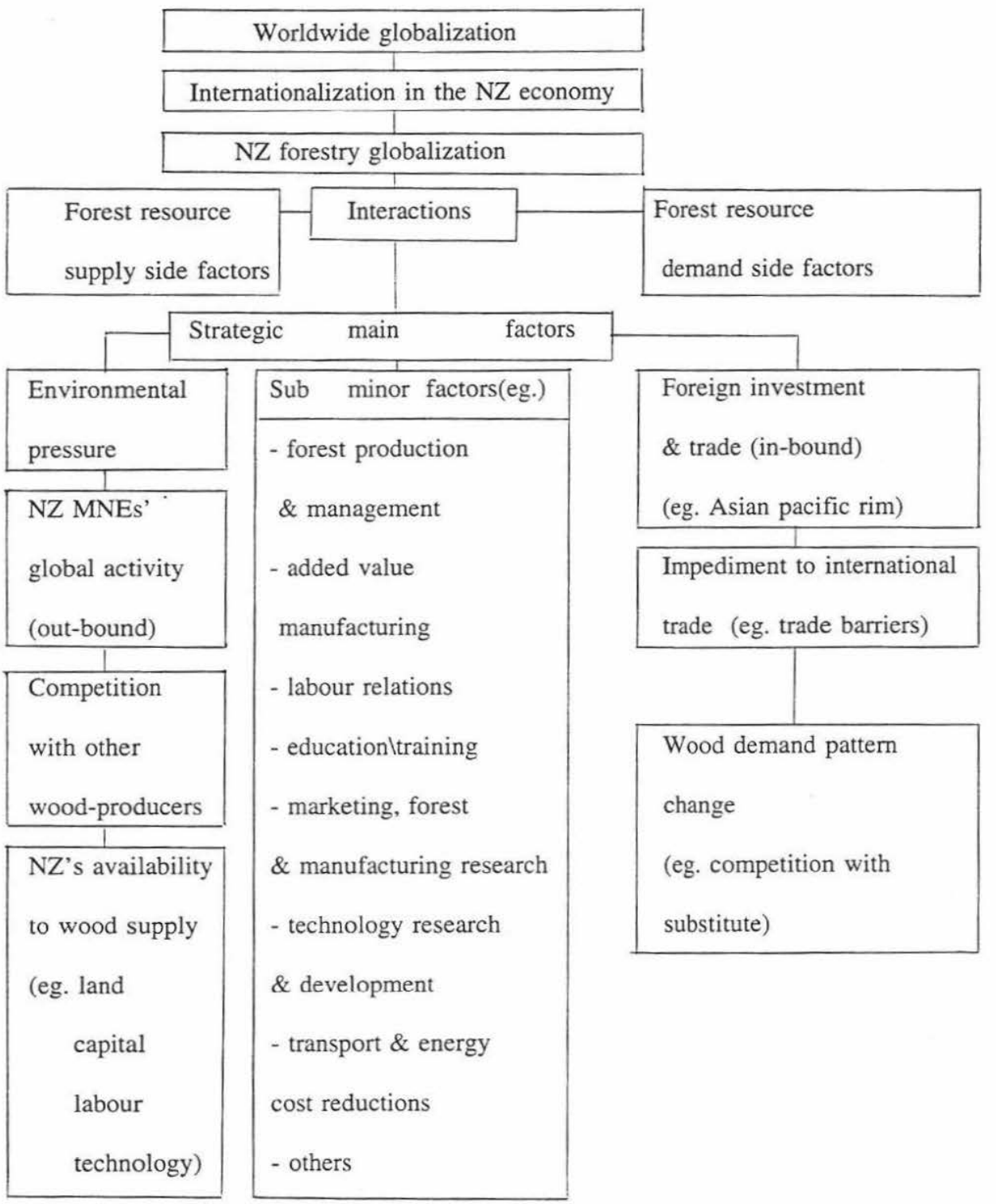
A.Kirkland (1984) forecasted that the future supply of wood harvesting and marketing strategy for state plantations was directed to at least (i) defining the extent and quality of significant state wood resources up to the end of the century (ii) providing industry with indicative schedules of state wood availability by time, location, quality and quantity, (iii) achieving successful integration at local, regional and national levels to satisfy existing commitments, provide further opportunities for existing and new operations, and yield a fast market-return on state investment.

From an economic point of view, the developments in the world forestry industry (ie., globalization) can be explained in the context of resource demand (ie., wood-deficit) and wood supply (ie., wood-rich) countries.

It is this context that needs to be understood to set up a comprehensive strategy for globalization to examine the strategic factors which currently affect the New Zealand forestry industry.

Factor interactions in New Zealand forestry are illustrated in Figure 3.1 and discussed in the sections following.

Figure 3.1 Factor Interactions in New Zealand Forestry Globalization



3.2 Resource Supplying- Side Factors

3.2.1 Competition with Other Wood-Producers

In terms of resource supply, one of the major factors affecting New Zealand's forestry globalization is competition with other wood producers. Recent FAO projections suggest that wood deficit in the world's largest importing country will continue to grow at least till the end of the century. According to W.Sutton(1992), given the following factors:

- New Zealand's relative smallness as a wood producer
- the pressures on other forest resources
- the vast volumes of wood used by the world
- the unlikelihood of massive substitution
- the small proportion of the world's wood that comes from plantations,

it seems reasonable to assume that markets will not be a limiting factor for plantations being harvested next century.

The above viewpoint however, might be too academic even though it rests on realistic data and facts. The reason for caution is that the mere existence of wood deficit markets will not ensure growth in New Zealand's exports to fill the gaps. The extent to which New Zealand may benefit will depend on many factors. Perhaps the most important among these is the level of marketing effort. Another is the relative profitability to producers of different markets and different processes. The cost and availability of other inputs required for wood processing are also important considerations.

Though many of these factors are to a large extent within domestic control there are others which are not. The principal among these is the extent of competition from other producers.

For example, it should be noted that Brazil grows southern pine equally well, compared to New Zealand Radiata, and that there are established forest plantations reaching maturity. Already, the Brazilian sawmill industry is exploiting export opportunities in the United States. Besides, a massive Korean corporate joint venture had signed a deal with the USSR to open up the Siberian forests in return for free timber to recoup costs for roading, power, railways and other development. The Siberian loggings could have a severe impact on timber markets. Clearly, they too can expand and become a more successful interloper, if New Zealand is unprepared to meet the challenge from the competitors.

In order to scrutinize the situation of competition from other producers, it is first of all, necessary to overview the global forest base in terms of productive forests area, global harvest, product outputs, per capita consumption etc. :

* The total area of natural and man-made forests

The total area of closed (ie., excluding open woodlands) natural and man-made forests is over 2,800 million hectare, of which 70% is productive and the balance of which is currently classified as unproductive (30%) --- due primarily to access difficulties. Hardwood forests cover 60% of the total closed forest area, and softwoods account for the other 40%. The regional breakdown of the world's closed forests, and the regional shares, are given in Table 3.5. The estimated area of plantation comprises only a fraction of the total forest area.

Table 3.5 Closed Forest Areas and Productive Forests (million ha.)

Region	Coniferous (softwood)	Broadleaved (hardwood)	Total closed forest	Productive forest area (ha)	(%)
Europe (excl. USSR)	75	57	132	127	6.5
USSR	645	147	792	400	20.4
Nth & Cent.America	301	168	469	390	20.0
South America	26	666	692	528	26.9
Asia	69	388	457	296	15.1
Oceania	6	70	76	59	3.0
Africa	3	216	219	160	8.1
World Total	1125	1712	2837	1960	100.0
of which plantation is—	62	31	93	93	4.7

Sources: FAO; Jaakko Poyry

* Global Harvest

From the global forest base, the current annual harvest exceeds 3.4 billion cubic metres (CUM) \ year, a 48% increase over the level 20 years ago. Softwood accounts for 41% of the current harvest. Asia and North America are the most significant in terms of regional harvest, although 71% of the Asian region's harvest is used for fuel, while 78% of the North American harvest is applied to industrial uses.

* Product outputs by region

North America dominates the output in all product aggregates, accounting for at least 30% of global output in 1989. Collectively, Europe and Asia account for a further 50%.

* Per capita consumption

The per capita forest products consumption range across countries is substantial, reflecting such aspects as their stage of social and economic development, the historical use of locally available building materials, and competition of their export trade (Table 3.6).

Table 3.6 Per Capita Consumption of Forest Products

Example countries	Population (millions)		Sawnwood (m^3/person)		Wood panels (m^3/person)		Paper & board (kg/person)	
	1979	1989	1979	1989	1979	1989	1979	1989
More developed								
USA	225	249	0.523	0.520	0.150	0.140	278	307
Japan	116	123	0.386	0.325	0.093	0.108	152	222
Germany	78	79	0.238	0.235	0.125	0.139	139	182
UK	56	57	0.180	0.204	0.069	0.100	135	168
Canada	24	26	0.626	0.759	0.180	0.208	181	236
Australia	15	17	0.280	0.316	0.058	0.071	131	153
Sweden	8	8	0.550	0.557	0.155	0.160	200	259
Finland	5	5	0.645	0.658	0.163	0.149	217	300
New Zealand	3	3	0.433	0.510	0.073	0.142	114	168
Less developed								
China	975	1112	0.021	0.023	0.001	0.004	7	15
India	660	812	0.015	0.022	0.0003	0.0005	2	3
Indonesia	143	179	0.015	0.042	0.004	0.004	3	5
Korea	57	65	0.051	0.073	0.018	0.021	46	61
Turkey	44	57	0.107	0.087	0.013	0.014	12	10
Thailand	46	55	0.051	0.060	0.003	0.005	10	13
Malaysia	13	17	0.195	0.186	0.029	0.025	22	26
Chile	11	13	0.102	0.123	0.008	0.017	21	27

Source: FAO

Studies of international market prospects indicate a number of features of interest to New Zealand forestry organisations. Generally, most observers favour the optimistic prediction that New Zealand's production could be available for export at an opportune time. The reasons given are :

1. Plantations of northern temperate regions are likely to sustain only existing supply levels,

2. Tropical plantations, except for perhaps the fast-growing plantation of Brazil, are only compensating for losses of future supply from diminishing tropical indigenous forests,

3. Few countries apply intensive management practices (eg., New Zealand, Australia, and South Africa). Most of the global forest industry is based on natural forests,

4. Although hardwood species predominate in the global harvest, softwood species comprise over two-thirds of the industrial use of wood, with North America the most significant region in industry terms,

5. In the Pacific Rim, industrial wood production and trade is dominated by net imports to Japan and USA. New Zealand's significance is in international trade, particularly in the Pacific Rim region. With all of New Zealand's future incremental harvest having to be exported, the country's share of this regional trade will increase to a considerable level,

6. The major suppliers of wood to these countries are Canada, Indonesia. Malaysia, USSR, Chile, and New Zealand (Table 3.7).

Table 3.7 World Industrial Wood Production and Trade (mil CUM\yr)

	1980 actual		2000 estimate	
	production	exports/imports[a]	production	exports/imports[a]
Japan	41	−72	58	−118
Western Europe	252	−31	326	−59
USA	355	−11	459	−29
Canada	143	+60	184	+75
USSR and Eastern Europe	398	+19	531	+41
Oceania	26	+4	58	+24
Central and South America	55	+3	124	+12
Rest of Asia	151	+27	259	+44
Africa	50	+1	81	+10
Total (World)	1471	−	2080	−

[a] Net imports subtracted from net exports.

Source ; FAO, 1982

7. Sawntimber products are the most significant industry output by weight, although this category has experienced a decline in relative significance over the past 20 years. Per capita timber consumption has flattened out but that for paper products has continued to rise since the 1960s.

8. The plantation resource and age-class patterns of three competitor nations, Australia, New Zealand and Chile, are fairly similar (Table 3.8).

Table 3.8 Area of Plantations by Age Classes (ha. as at year 1983)

Age class (years)	Australia	New Zealand		Chile
	all species	all species	radiata	radiata
1-5	168	283	264	308
6-10	180	264	252	337
11-15	166	165	152	154
16-20	122	79	66	79
21-25	34	42	33	39
26-30	32	26	22	33
31-35	31	13	9	18
36-40	–	11	8	–
41-50	–	27	7	–
51-60	–	38	17	–
61-80	–	3	(~0.1)	–
Total	733	951	830	968

Source ; W. Sutton, 1985

9. Projections of future supply suggest New Zealand will not have big increases in export volumes before 1995. Australia is likely to stay a net importer of wood until at least 2000 A.D. Harvests from Chile will probably match New Zealand levels for fifteen years, and the advantage of greater planting rates in Chile will begin to affect wood supplies from 2005 onwards.

3.2.2 New Zealand's Ability to Supply Wood

Future New Zealand wood yields can be estimated with ' some confidence ' provided the modeller has access to good forest description data and has an awareness of how commercial constraints limit the likely range of tree harvest ages and restocking strategies and provided there is no possibility of natural disaster.

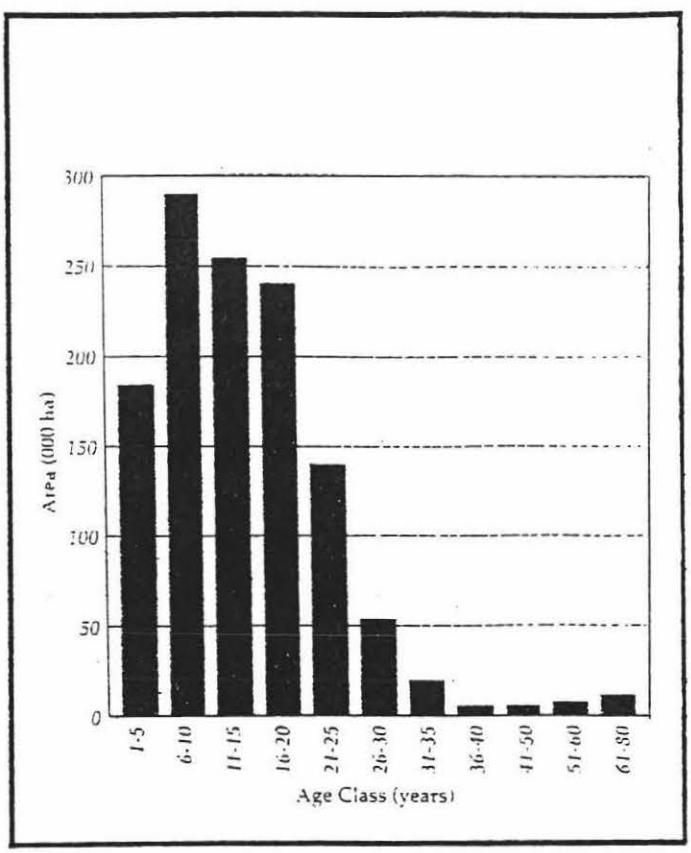
The timing of the increase in sustainable yield should be reliable to within a decade assuming Radiata pine's harvest rotation is 25-30 years. As shown in Figure 3.2, there is a great predominance of stocked forest area aged 15-20 years old or less. Almost 61 per cent on New Zealand's 1.3 million ha. of planted forests is considered immature for harvesting. About 290,000 ha. is aged between 8 and 12 years and 250,000 ha. between 13 and 17 years. According to Forestry Ministry statistics, 40 per cent of the trees are concentrated in the central North Island's (CNI) volcanic plateau and Bay of Plenty. Other major growing areas include Northland, Hawke's Bay, East Cape, Nelson-Marlborough and Otago-Southland.

The standing volume is estimated at 244 mil CUM, which has an annual growing rate estimated at 22 mil CUM. As new wood matures the annual available for harvest is expected to rise to 19 mil CUM by the year 2000 and to 31 mil CUM by 2010. The predicted volume increase in central North Island stands would be small in percentage terms but could approach an additional two million CUM by the year 2015. This means that New Zealand can expect to enjoy a major increase in harvest from their forest estate within a decade.

However, the further out in the future an estimated forecast yield is, the more unreliable that estimate will be because uncertain future planting and industrial processing decisions tend to have more and more influence on the way in which the national forest estate is cut.

In order to insure constant wood flow, continuous afforestation should take place sourced by land, capital, labour and technology to harvest continuously from the existing uneven age-class distribution of plantations.

Figure 3.2 New Zealand Planted Forest Area by Age Class (1992)



Source : Ministry of forestry, 1993

The availability of these factors of production will determine New Zealand's future ability to supply wood. Each of the factors is discussed focused on three elements of production (eg., land, capital, and labour).

3.2.2 (a) Land

The land resource availability is the first prerequisite consideration as forestry is a land-based primary industry. Currently, land availability for vast forest plantations is faced with great difficulty in New Zealand. Now that it is unacceptable to fell indigenous vegetation for plantation establishment, there are no large areas of undeveloped land left in New Zealand. Often only small blocks of suitable forestry land are available for purchase at any one time. Recent plantings have been on marginal area (such as hill country, sand dune area etc), but in most cases this is economically not very profitable due to extraction, accessibility and soil erosion problems etc. Because there are major economies of scale in plantations, the availability of only small blocks poses real entry barriers for new companies into plantation forestry.

The last decades have seen the concentration of plantations into two major companies [eg., Kaingaroa state afforestation by NZFS(New Zealand Forest Service), NZFP(New Zealand Forest Products)]. Their now large plantation holding makes it unlikely that they will be able to undertake major new planting efforts in the next decade or two (after completion of the sale of the state plantation asset).

Much of the future development of the forestry estate will have to come from on-farm planting. " Farmers hold the key to a tree planting upsurge which over 30 years could treble the national timber estate and generate billions of dollars of export income " (The New Zealand Farmer, June 12, 1991).

It seems however, that farmers cannot afford the funds to plant even if they can provide available land for plantation. Consequently, joint venture forestry with investors (either domestic or overseas) will be the most feasible type for development under this situation.

It is often pointed out that there is too much over-dependence on mono-tier farming in rural land use in New Zealand. Agroforestry can play an important role by upgrading rural land use efficiency toward more intensive, multi-tier land use. Furthermore, agroforestry gives an option to farmers to wait for long-term forestry investment by compensating from short-term livestock return. If the relatively new and developing technology of agroforestry is adopted, farmers have the opportunity for returns which significantly out-perform both traditional farming and forestry. A recent analysis showed the following comparison of returns for South Auckland hill country (Table 3.9).

Table 3.9 Comparative Returns in Forestry & Farming

Internal Rate of Return(%)	Farming	Forestry	Agroforestry
	6.4	7.1	10.7

Source : D.Hopkins & G.Cumberland , Farmpac corporation, 1991

The following Table 3.10 shows the conservative estimate of potential forestry areas on farms. It indicates that about 6.7 million hectares could be used for wood production in conjunction with farming. Assuming a yield of 20 cubic metres per ha. per annum, the harvest would be of the order of 100 million cubic metres per annum.

Table 3.10 Conservative Estimate of Potential Forestry Area on Farms (Unit:000ha.)

L.C class	Principal land Use	%	North Island		South Island		Total	
			Total	Forest	Total	Forest	Total	Forest
1	Horticulture-Shelter	8	150.4	12.0	36.0	2.8	186.4	14.8
2	Crops\Orchards-Shelter	5	715.6	35.8	489.4	24.5	1205.0	60.3
3-5	Pastoral-shelter	3	2042.5	61.3	2815.5	84.5	4858.0	145.8
	- agroforestry	20		408.5		563.1		971.6
6	Pastoral-agroforestry	30	3148.5	944.5	1996.6	599.0	5145.1	1543.5
7	Woodlot forestry	All		1541.3		1047.0		2588.3
8	Protection forestry	All		169.8		1212.6		1382.4
	Total		6057.0	3173.2	5337.5	3533.5	11394.5	6706.7

Source: C.G.R. Chavasse, Tree Grower, 1990

W.Sutton (1992) forecasted that if New Zealand land owners had confidence in the future of forestry and if conditions were favourable for tree crop establishment, New Zealand could establish a further 3(three) million hectares of plantations over the next 30 years (ie., at a rate of 100,000 ha. of new planting per year). That represents just over 20% of New Zealand farmland. Agricultural production, mainly in pastoral sector could be expected to decline but by only about 10% as young and middle age stands could be grazed. With management, the loss of agriculture production may be even lower.

Agroforestry could now be incorporated in the management planning and decision-making of land owners, to ensure that all the options for land use are fully considered if it is profitable. Growing trees can thus become part of New Zealand's highly valued family farm ownership and so increase the portion of forest resource in the hands of the small grower.

3.2.2 (b) Capital

Considering the current New Zealand situation, many in the industry recognise that taxation measures alone cannot provide the impetus needed to build the areas of new plantings.

New Zealand still needs to have continuous capital (either domestic or overseas) to finance continuous afforestation. Higher levels of domestic processing will also require additional capital investment, as well as inputs such as power and water and managerial and technical skills. Particularly, the pulp & paper industry is capital intensive, much of the large increase in softwood supplies which is becoming available from 2000 onwards, is mainly suitable for pulping.

Because of the long time-frame of a forestry investment, normal sources of development finance are relatively restricted. The likelihood of fluctuations in interest rates and inflation during the 30-year cycle of a forest, financing risks can only be overcome by ensuring that any forest venture has a high percentage of equity capital. The main sources of finance are as follows :

(i) Corporate financing

Major companies involved in the forestry sector rely largely on the share market to provide the confidence required to attract investor capital into new or additional share issues. Even the issue of unsecured convertible notes relies on market confidence in the abilities of the issuing company.

(ii) Small-scale financing

Although the trading banks have a significant level of liquidity, these funds are largely held in short-term investor deposits. The key to achieving further plantings in the private sector is in attracting some of these funds into ventures that can demonstrate their place in an industry that has been consistent in its returns over a long period of time. For this reason, the introduction of tax deductibility provides an incentive because it reduces the immediate cash exposure for an investor. As an alternative, a greater area of forest can be available because size can produce efficiencies by improving the net worth of the investment.

(iii) Indirect financing effect by tax deduction

Investors in a forestry project can claim expenditure in a given year against their taxable income for that year except if the project has an investment company structure other than a qualifying company structure [see 5.1.2 iv), Forestry Investment Structure]. Where a forestry partnership is being promoted, the partnership agreement must reflect the fact that the participant is carrying on a business in order to obtain the deductions under the 1991 forestry taxation amendments. Forests in existence in April 1991 will have established a ' Cost of Bush Account '. Land used solely or principally for forestry is exempt from land tax. The forest owner is entitled to spread the income arising from the sale of timber over the year the timber was sold and the three preceding years (Table 3.11).

Table 3.11 Current Tax Treatment of Forestry Costs

Activity	Tax Treatment
Land purchase\ lease & associated fees	Expenditure capitalised
Access roading	Capitalized and depreciable if intended to last more than 1 year
Pre-plant site preparation	Capitalised and depreciable
Planting, releasing, pruning & thinning	Deductible in year incurred
Production thinning	Proceeds from production thinning assessable
Annual operating expenses - Fertiliser & application - Repairs & maintenance - Interest on funds borrowed for land purchase, development, planting & maintenance - Rents, rates & administration costs	All deductible in year incurred
Harvesting & transport costs	Deductible in year incurred
Proceeds from sale of logs	Assessable but can be spread

Source : NZIF (1993), Guideline for Forestry Investment Project

3.2.2 (c) Labour

There is a concentration of employment in the forestry and wood products industries near the largest forest areas, particularly in the central North Island (CNI). Over half the country's plantation forests are located there, with one-quarter of the regional labour force engaged in the forestry industries. Forestry industries have had a marked effect on regional development. The development of such industrial complexes has also stimulated other industries, especially transport, vehicle repair, building and construction and the tonnage passing the ports. The Department of Statistics annual business directory update recorded a total of 25,937 people engaged in timber-related industries in 1992. There were 4,215 people engaged in forestry, 3,653 in logging, 5,866 in sawmilling, 6,935 in timber merchanting, and 5,268 in pulp & paper manufacturing and wholesaling. This compares with 25,604 people employed in the same activities in 1991 (Table 3.12).

Substantial improvements in labour productivity have occurred. This reflects a number of influences --- union cooperation, the removal of restrictive practices, better plant, better management etc. A statistical source indicates that about 100 tonnes of logs a day provided employment for 36 people in an efficient modern mill and the outflow of 600 tonnes a day out of the region could provide an additional 216 jobs. But modern mills such as the continuous-line process have reduced the input of labour to only a few per cent (%) of total expenses.

A recent report shows that " In terms of linkages and overall impacts on economic development in the region (eg., Manawatu), no miracles should be expected from forestry development. The linkages do exist but are not significantly different from other economic activities. Especially with modern technology in wood processing, the employment effect could be small " (Meister et als, 1992, p.18). Table 3.12 shows that employment has fallen by at least 4,500 (28%) since 1987. Considering modern mill exclude many routine-manual job, it is recommendable to reinforce highly trained specialist, skilled staff, foresters, marketing negotiator & analyst as market development is becoming increasingly urgent issue.

In the longer term, there will be the need for effective coordination between the forest sector industries and educational & training planning, if the potentially rapid growth of the sector is not to be limited by the availability of skilled and professional manpower.

Table 3.12 Employment in Forestry & Activities associated with the Use of Wood

NZSIC code [2]	Description of activity	Persons engaged [1] as at mid February 1987	1988	1989	1990
11212	Fencing	507	484	484	461
1210	Forestry and services to forestry [3]	7 755	4 212	3 793	3 342
1220	Logging and other timber felling	2 328	2 504	2 424	2 280
1230	Forestry & logging management & consulting services	111	140	159	259
12	**Forestry and logging**	**10 194**	**6 856**	**6 376**	**5 881**
33111	Sawmills	6 587	6 030	5 359	5 199
33112	Planing, preserving and seasoning timber	1 070	934	696	724
33113	Chipmills	119	119	70	64
33114	Builders carpentry and builders joinery	5 198	5015	4 822	4 885
33115	Prefabricated and precut buildings	863	779	711	705
33116	Plywood, veneer and board	1 012	991	1 127	1 152
33119	Sawmills, planing and other wood mills n.e.c.	1 276	1 141	567	576
3311	**Sawmills, planing and other wood mills**	**16 125**	**15 009**	**13 352**	**13 305**
3312	**Manufacture of wooden and cane containers and small cane ware**	**791**	**751**	**684**	**672**
3319	**Manufacture of cork products and wood products n.e.c.**	**993**	**923**	**873**	**859**
33201	Wooden furniture and upholstery	7 384	7 038	6 383	6 312
34110	Pulp, paper and paperboard	5 819	5 724	5 162	4 396
34121	Corrugated board; paperboard and corrugated board boxes, cases and cartons	2 919	2 993	2 108	2 104
34122	Paper bags and sacks	376	407	471	546
34191	Wallpaper factories	299	255	228	216
34199	Pulp, paper and paperboard articles n.e.c.	1 224	1 307	1 119	1 326
341	**Paper and paper products**	**10 637**	**10 686**	**9 088**	**8 588**
51010	Buildings - residential	20 169	20 745	19 210	19 316
51020	Buildings - non-residential	16 368	15 215	13 263	9 078
510	**Construction of buildings**	**36 537**	**35 960**	**32 473**	**28 394**
53030	Job carpentry	2 252	2 611	2 396	2 668
61410	Timber and other building materials	8 923	8 414	7 608	7 237
62190	Unprocessed primary products, n.e.c.	328	333	320	377
71141	Logging haulage	675	814	727	823
	Forestry and first stage processing [4]	**25 476**	**21 468**	**19 517**	**18 239**
Total all activities in business directory update survey		**1 264 724**	**1 241 175**	**1 215 864**	**1 203 493**
Total labour force as at March quarter [5]		**1 625 000**	**1 609 200**	**1 581 700**	**1 587 000**

[1] *Persons engaged* is the total number of full time employees and working proprietors (i.e. persons working 30 hours or more per week) plus half the part-time employees and working proprietors.

[2] For full definitions of the activities included in each *NZSIC code* refer to *New Zealand Standard Industrial Classification*, Department of Statistics (Wellington, 1987).

[3] An adjustment downwards of 500 persons engaged has been made to the 1988 and 1989 figures published by the Department of Statistics as it is considered by the Ministry of Forestry that in both of these years some double-counting may have occurred.

[4] *Forestry and first-stage processing* is defined as the sum of NZSIC activities 12 Forestry and logging; 33111 Sawmills; 33112 Planing, preserving and seasoning timber; 33113 Chipmills; 33116 Plywood, veneer and board; 34110 Pulp, paper and paperboard; 71141 Logging haulage.

[5] *Total labour force as at March quarter* figures are from the Household Labour Force Survey, Department of Statistics.

Source: Dept.of Statistics (1987, 89,90)

3.3 Resource Demanding-Side Factors

3.3.1 Foreign Investment in New Zealand Forestry

3.3.1 (a) Implications of Foreign Investment Trends

New Zealand's forestry industry sector is moving into boom-time mode as a world shortage of harvestable wood continues to push up the prices of logs and processed-timber products. Environmental pressures have reduced supplies of Southeast Asian hardwoods and United States softwoods, making New Zealand's extensive plantation forest an increasingly valuable asset. Export earnings from forestry leaped by half a billion dollars for the 1992-1993 June year according to the sources of the Forestry Ministry. In the 12-month period till the end of June, exports of forestry products earned just over $ 2.3 billion, compared to $ 1.8 billion the previous year.

By the turn of the century, forestry will probably be New Zealand's principal industry, earning more than meat, dairy products, tourism, wool or manufactured goods. Overseas earnings from the different industry sectors include wood pulp worth ($ 353 million), logs and poles ($ 701 mil), paper & paperboard ($ 363 mil), sawntimber ($ 429 mil), fibreboard ($ 193 mil), woodchips ($ 45 mil) and other forest products ($ 162 million). The main export destination for the products was Australia ($ 703 mil), Japan ($ 639 mil), Korea ($ 329 mil), Taiwan ($ 133 mil) and China ($ 91 mil).

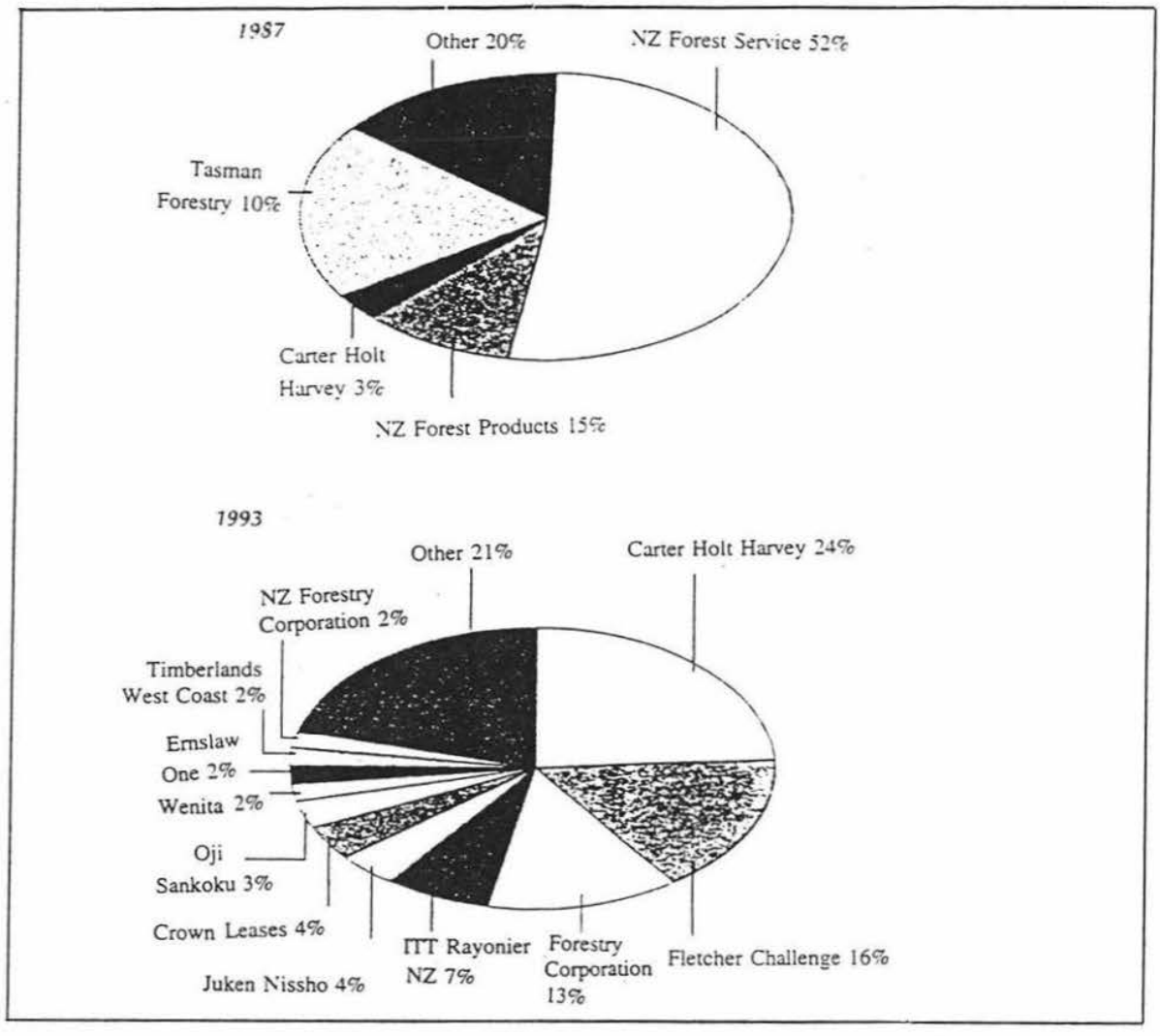
Dwindling supplies from traditional sources is increasing interest in New Zealand forest products from both the Asian and U.S. markets. The industry forecasts that it is on course to earn $ 4 billion in export earnings by the year 2000. Total harvest is expected to nearly double within 15 years from the current 13.5 mil cubic metre(CUM) a year to 25 mil CUM. New plantings in 1992 reached 48,000 ha., more than tripling the previous year's level and illustrating a new interest in forestry as an investment vehicle. The 30-year rotation cycle of Radiata pine makes it an attractive option for superannuation investment and a number of joint venture projects have sprung up to cater for this market. To process the increased harvest could require an investment of up to $ 3.5 billion in the next 15 years, according to the Ministry of Forestry, much of that is likely to come from overseas.

3.3.1 (b) Change in Ownership of Planted Forestry

In the aftermath of the sale of state assets, the ownership of planted forestry in New Zealand has changed dramatically during the six years between 1987 and 1993, with forests largely being taken over by private enterprise. Statistics from the Ministry of Forestry show that the largest single owner-manager is now Carter Holt Harvey (CHH), which owns 325,000 hectares or 24.8 per cent of the total planted area. In 1987, it owned only 3 per cent.

Fletcher Challenge (FCL) is the next largest with 205,000 hectares or 15.7 per cent of the total planted area.

Figure 3.3 Change in Ownership of Planted Forestry in New Zealand



Source : Ministry of Forestry, Statistics 1993

The Crown now owns less than 20 per cent, or 170,000 hectares, of the total planted area, through its holdings in the Forestry Corporation of New Zealand. The Ministry of Forestry supervises the management of 51,000 hectares of forest planted on Maori leasehold land. The Crown previously owned 52 per cent through the New Zealand Forest Service (NZFS). Smaller private owners make up 21 per cent of total planted forest ownership.

3.3.1 (c) Features of Recent Investment

Features of recent investment in the sector are :

* High value wood processing

A shift toward high value wood processing by both small firms and some of the larger corporates. Investment ranges from minor alterations to existing capital and addition of new kiln capacity, to the establishment of whole new plants, as with Juken Nissho's LVL (laminated veneer lumber) mills and Panahome Innosho NZ house components mill in Rotorua.

* Foreign joint venture

A marked increase in foreign investment and joint ventures between New Zealand companies and foreign companies, for example, FCNZ\Fibreform and Radiata components New Zealand. Joint ventures facilities access into the home market of the foreign joint venture partner and assistance for smaller firms that may have difficulty financing expensive market development and market servicing costs.

Table 3.13 shows the trends of recent investment.

Of the foreign companies involved in New Zealand, Juken Nissho is the largest single investor in new capital, with a commitment of $ 139 million in the three years 1992\94. This sum is in excess of that spent purchasing the Northern Pulp Triboard mill's forests near Kaitaia ($ 17.5 mil) and cutting rights to state forests in Northland, East Cape and Wairarapa ($ 125.55 mil) in 1990 (Table 3.14).

Table 3.13 Investment in New Zealand Forestry (1993)

Year	Investment NZ$million 1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Solid Wood Processing										
Domestic	21.0	0.0	0.0	7.5	10.0	30.0	0.0	0.0	0.0	0.0
Foreign	0.0	20.0	0.0	45.0	8.5	40.0	0.0	0.0	0.0	100.0
Joint Ventures	0.0	0.0	0.0	3.0	9.0	0.0	30.0	0.0	0.0	0.0
Total	21.0	20.0	0.0	55.5	27.5	70.0	30.0	0.0	0.0	100.0
Residue Processing										
Domestic	230.0	58.0	244.6	0.0	0.0	75.0	0.0	0.0	0.0	0.0
Foreign	0.0	0.0	0.0	0.0	6.8	20.0	0.0	0.0	0.0	0.0
Joint Ventures	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	230.0	58.0	304.6	0.0	6.8	95.0	0.0	0.0	0.0	0.0
Forest Growing										
Domestic	0.0	262.5	410.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign	0.0	354.6	0.0	366.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	617.0	410.2	366.0	0.0	0.0	0.0	0.0	0.0	0.0
Forest Company										
Domestic	0.0	700.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign	0.0	17.5	799.5	196.0	100.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	717.5	799.5	196.0	100.0	0.0	0.0	0.0	0.0	0.0
Grand Total	251.0	1412.5	1514.3	617.5	134.3	165.0	30.0	0.0	0.0	100.0

Note) This summary is not comprehensive. It covers only one-off investments by major operators not ongoing upgrades nor investments by minor operators.

Source: Chris Lovell, Forestry Development Group, 1993

Another Japanese company, Sumitomo, recently increased its 50 per cent in Nelson Pine Industries (New Zealand's biggest manufacturer of medium-density fibreboard) to full ownership. The sale of state owned forests brought in overseas investors such as ITT Rayonier (an American company which now owns 7.6% of the 1.3 million ha. of plantation forest); the Chinese company Wenita Forestry(1.6%) and Singapore\ Malaysian joint venture Ernslaw One(1.8%).

The growing globalization of the industry is reflected in international strategic alliances between major forestry companies. For instance, a $ 9 million processing plant being built near Dunedin is a New Zealand \ American joint venture that combines local resource with overseas marketing clout. The New Zealand-owned Forestry Corporation, which accounts for 30% of the local log harvest, recently announced a joint venture with U.S. wood manufacturer and marketer, Fibreform Products.

Local forestry giants Fletcher Challenge (FCL) and Carter Holt Harvey (CHH) have major overseas investment in countries such as Canada and Chile, but global investment flow is not a one-sided traffic.

For instance CHH, which owns 25% of New Zealand's forest resource plus a substantial network of value-added processing plants, has a major investment in one of Chile's largest forest companies, Arauco and is in turn, 16% owned by the world's biggest pulp and paper company, International Paper (IP). CHH exports account for five per cent of New Zealand's total export receipts. In the year ended March 1992, the company derived a third of its export earnings ($271.9 mil) from forestry and timber; pulp and paper exports earned a further $ 257.3 million.

The company reported a strong demand for logs from Japan and Korea and a rising demand for panel products in Asia and Europe. Fletcher Challenge (FCL) reported a record $ 678.5 million of exports in the six months ended December 1992, an 11.4% increase on the previous year. The proportion of the group's exports going to Asian countries increased to 45% ($ 308 million), with Japan taking the largest share ($ 129 mil) followed by Korea ($ 42 mil), Taiwan ($ 32 mil), and Hong Kong and Singapore ($ 20 mil) by value for the year ended June 1993.

Wood processing is going through a period of rapid change as the industry gears up to reposition Pinus Radiata on higher priced, added value export markets. An indication of recent investment activity is shown in Table 3.14.

The contents of this Table 3.14 capture a large proportion of recent activity but it is by no means complete. Almost every mill had conducted same capital investment in the past few years, with commitments ranging from about $ 250,000 up to $ 240 million.

Clearly, there is substantial interest in investing in the New Zealand wood processing industry but most satisfaction must come from the elevation of Radiata pine to new reputations in the market and from the rapid increase in processing investment by foreign companies. This activity has changed the meaning of restructuring, for at least one element of the New Zealand economy.

Table 3.14 New Zealand Wood Processing Investment Planned or Completed (January 1991-April 1993) (NZ $ million)

Date	Company	Process	Location	Investment
1991	CHH/NZFP	Pulp and Paper — upgrade/new	Kinleith	240.00
1991	CHH/NZFP	Paper — upgrade	Matauro	4.60
1991	Nelson Pine Industries	MDF — expansion	Nelson	60.00
1991	Donelley Sawmillers	Sawmill — upgrade	Reporoa	0.60
1992	South Pine	Sawmill — upgrade	Nelson	2.00
1992	Juken Nissho	LVL — new	Masterton	42.00
1992	CHH	Sawmill — upgrade	Taupo	1.20
1992	FCNZ	Sawmill — upgrade	Rotorua	7.50
1992	Ernslew One	Sawmill — upgrade	Tapanui	3.00
1993	Hunter Laminates	Laminates — upgrade	Richmond	1.00
1993	River City Dimensions	Dimensions — new	Wanganui	.25
1993	CHH/PanPac	Sawmill — upgrade	Napier	4.20
1993	Tasman Lumber	Sawmill — upgrade	Kawerau	10.00
1993	Otago Chip	Woodchip — additions	Mosgiel	1.10
1993	Panahome Innosho NZ	Millwork/Composites — new	Rotorua	8.50
1993	Radiata Components NZ	Millwork/Composites — new	Mosgiel	9.00
1993	Thames Timber	Sawmill — upgrade/additions	Thames	1.50
1993	Rosebank Timber	Sawmill — expansion	Balclutha	3.50
1993	Golden Downs Dimension	Millwork/Composites — new	Tapawera	.75
1993	CHH	Plywood — refit/expansion	Kinleith	30.00
1993	Juken Nissho	Veneer/additions	Kaitaia	2.00
1993	FCNZ/Fibreform	Millwork — new	Mt Maunganui	8.50
1993	FCNZ/Fibreform	Millwork/new	Rotorua	22.00
1993	Nelson Pine Industries	MDF — refit/expansion	Nelson	6.80
1993	Waipuna Lumber	Sawmill/new	Hawke's Bay	0.25
1993	Juken Nissho	LVL — expansion	Masterton	20.00
1993	Waimea Sawmills	Sawmill — expansion/upgrade	Nelson	.30
1993	Flight Anderson	Sawmill — upgrade	Blenheim	.45
1994	Juken Nissho	Thin Triboard — new	Kaitaia	35.00
1994	Juken Nissho	LVL — new	Gisborne	40.00
1994	CHH	MDF — expansion	Rangiora	75.00
1994	Winstone Pulp Internat.	Pulpmill — expansion	Karioi	20.00
1994-95	Woodgrain	Millwork — new	Bay of Plenty	15-20

Source : NZ Forest Industries, 1993

3.3.2 Impediment to International Trade

Another strategic factor affecting the New Zealand forestry globalization and export is the political and institutional structure of demanding country. It includes forestry policy, relevant organisations, legal structure and trade barriers etc. Particularly, trade barriers (eg., tariff system) are a main impediment in New Zealand forestry trade and its globalization.

3.3.2 (a) Tariff Barriers

Worldwide, tariff levels on most forest products have been reduced to low levels. For individual products, however, such as panel products (eg., plywood), manufactured wood products, some paper and paperboards, and furniture, rates are still high in some markets. As tariffs have declined, non-tariff barriers (NTBs) have become more important.

New Zealand's expanding wood supply will result in increasing volumes of forest products being exported. Unless these exports are of unprocessed products (eg., log form), trade barriers will become an increasing restriction. Every effort must, therefore, be made to reduce or overcome these trade barriers since any improvement will assist New Zealand's competitiveness. Tariff levels for six major import markets on Radiata pine forest products are shown in Table 3.15.

Table 3.15 Most Favoured Nation Tariff Rates (% ad valorem) on Radiata pine Forest Products, July 1991

	Japan	Korea	China	Australia	USA	EC
Solid wood						
Wood in rough	0	2	3	0	0	0
Flitches	0	2	3	0	0	0
Rough sawn timber	4.8	10	9	0	0	0
Planed/sanded timber	8	10	70	0	0	4/4.9
Pulp and paper						
Wood pulp	0	2	2	0	0	0
Newsprint	0	8-13	20	0	0	4.9
Kraft paper	2.5-3.5	13	20	0	0	6-9

Source : Clarke (1991), Tariff barriers on New Zealand Radiata pine

Tariffs on unprocessed products are zero or negligible. Rates on sawntimber or more processed products tend to be higher, and in some instances vary in size, wood species and degree of finishing. Levels also vary between countries.

Of note is the fact that even unprocessed products such as logs, wood chips and pulp are in many cases subject to tariffs of over 10%. More processed products such as panels, wood manufactures, furniture and paper commonly have rates in the range 20-40 %. Table 3.16 indicates tariff levels in India, Malaysia, Korea and China as examples of rates applying in developing countries.

Table 3.16 Tariff Levels for Selected Products in Four Developing Countries *(% ad valorem)

	India	Malaysia	Korea	China (a)
Wood in rough	40	20	5	13
Wood sawn lengthwise	50	20	15	19
Fibre building boards	140[b]	25	20	7.5
Plywood	70	40	30	15
Newsprint	0	5	40	
Kraft paper		5	40	
Furniture	90	55,60	50	150

* In most cases as at December 1986

(a) In addition product taxes are imposed which average about 10%.

(b) Basic tariff plus products tax (NFPA 1986).

Note: These rates should only be regarded as indicative.

Source : National Tariff Schedule, Official documents

In the past, Korea effectively blocked imports of value-added forest products with high tariffs on processed products compared with unprocessed logs. In 1987, the tariff on plywood was as high as 30%, while the tariff on tropical hardwood logs was 1.5%. The new five year schedule of tariff reductions on forest products 1989-1993 introduced in 1988, is part of the Korea's on-going trade liberalisation programme (Table 3.17).

Table 3.17 Proposed Tariff Schedule for Forest Products (Korea)

Product	1988	1989	1990	1991	1992	1993
Softwood logs	3%	2%	2%	2%	2%	2%
Hardwood logs	3%	2%	2%	2%	2%	2%
South Sea logs	1.5%	2%	2%	2%	2%	2%
Softwood lumber	15%	10%	10%	9%	7%	5%
Hardwood lumber	10%	10%	10%	9%	7%	5%
South Sea lumber	10%	10%	10%	9%	7%	5%
Softwood veneer	15%	10%	10%	9%	7%	5%
Hardwood veneer	15%	10%	10%	9%	7%	5%
South Sea veneer	10%	10%	10%	9%	7%	5%
Particleboard/OSB	15%	15%	13%	11%	9%	8%
Fibreboard	20%	15%	13%	11%	9%	8%
Softwood plywood	20%	15%	13%	11%	9%	8%
Hardwood plywood	20%	15%	13%	11%	9%	8%

Source: Korea Customs Research Institute, 1989.

In 1989, the average tariff rate on all products fell to a level of 12.7% from 23.7% in 1983. The Korean government's objective through tariff reductions was to increase international competitiveness, stabilize domestic prices and ease trade friction with major trading partners.

3.3.2 (b) Non-Tariff Barriers (NTBs)

Non-tariff measures are wide-ranging. Such measures include direct quantitative controls such as quotas, tariff quotas, or voluntary export restraints; less direct controls such as important authorizations (licences, permits etc.) which may be automatic or at the direction of customs authorities; price level controls such as minimum prices, price investigations, variable levies, and countervailing duties; and health and technical standards which may be liberal or highly restrictive in their interpretation (Table 3.18).

In addition, customs formalities, import deposits, government trading policies and marketing and packaging requirements can also act as NTBs depending on their application. Even more difficult to categorize are internal subsidies which are often classified as NTBs. Anti-dumping investigations can be used to restrict imports, and many investigations appear to be used to create access difficulties rather than because a legitimate case exists.

Table 3.18 Examples of Non-Tariff Barriers

Non-tariff barrier	Country employing (examples)
Tariff quota	EEC
Prohibition	Many DCs (e.g., Colombia)
Quota	France, various DCs
Import procedures, licences	Most countries (e.g., China, India, Korea)
Foreign exchange controls	China, India
Anti-dumping investigation/ duty	USA
Standards	Numerous (e.g., Japan, EEC, Canada)
Government procurement	China, Korea, India
Marking and packaging	Numerous
Export controls	Indonesia, Malaysia, various South American countries

Note: The above barriers do not necessarily apply to all forest products in the named countries.

DC = developing country.

Source: National Tariff schedules, Official documents

3.3.2 (c) Implications for New Zealand Exports

Although tariff barriers are still declining in both developed and developing countries, rates on more processed products will continue to be greater than on unprocessed products. Similarly NTBs will be more prevalent on these products. In particular, technical and health standards, and anti-dumping investigations appear to becoming more prevalent.

High tariffs, tariff escalation, and the use of NTBs which are difficult to identify, are some of the concerns which must be addressed by New Zealand in expanding its exports.

New Zealand can expect to find that trade barriers are more of a problem in the future than now as efforts to increase the export of more processed and higher value products accelerate and as emphasis on exports to developing countries grows.

Negotiations and bilateral arrangement with demanding countries such as joint venture can provide effective measure to reduce tariff rates and trade barriers as an alternative.

3.3.3 Changes in Demand Pattern

The forest products industry faces severe challenges at this juncture in its history. It must convert its business strategy from a resource orientation to a marketing orientation. At the same time, the forest product industry must convert its raw material base from a naturally occurring resource to a managed resource, and it must convert its technical framework from large log to small log oriented technologies such as more sophisticated processed products.

At this moment, massive substitution for wood is unlikely as all wood substitutes (eg., aluminum etc.) are major energy demanders. Large-scale substitution of wood will only be possible if it is available to establish an alternative cheap, renewable and environmentally friendly energy source.

The wood products industry must however, recognize that it is an integral part of a much larger materials community which includes ferrous and non-ferrous metals companies, non-metallic mineral corporations, and petrochemical firms. The forest products industry must compete aggressively with these suppliers of materials used by society and the emergence of substitute would ultimately impact on overall forestry trade and international competitiveness as a centrifugal pressures. For example, during the last decade plastics have heavily infiltrated the area of forest products. The development follows two main lines: i) Plastic supplants timber entirely as a raw material in the manufacture of a product (timber-competitive plastics), and \ or ii) Plastic and timber form a steady symbiosis (timber-cooperative plastics).

The advantages and disadvantages of plastics versus paper are shown in Table 3.19.

Table 3.19 Comparative Advantages & Disadvantages between Plastics and Paper

i) Plastics	ii) Paper
* Advantages	* Advantages
- protection against water gases & many chemicals	- low price
- strength, elasticity & weldability	- good printing qualities
- optical clarity	- relatively insoluble
- low fire risk	- no poison risk
- good electrical insulation qualities	- large choice of appearance
- easily manufactured	
* Disadvantages	* Disadvantages
- relatively high price	- poor protection against water & gases
- poor printing qualities without special measure	- high fire risk
- some poor qualities at low temperatures	- poor electrical qualities
- more difficult to destroy	- cannot be heat-welded
	- poor elastic & other strength qualities

Source: L.Runeberg, 1969, Plastics in competition & cooperation with forestproducts

The question of how far plastic can be expected to supplant and become integrated with timber is of decisive importance for the entire future of forestry. The most important changes are within the paper and paperboard industry and the construction and carpentry industry. For instance, the construction of new houses has been concentrated in the metropolitan areas where the non-wood high-rise apartments complexes were built in the greatest numbers (eg. Korea, Japan etc.). It is mandatory in such areas to use non-wood, non-inflammable materials on external walls, even of wooden houses. To deal with this situation, non-wood materials are used increasingly for ceilings, walls, floors, and doors. Even in ordinary wooden houses these materials came to be used in greater proportions.

Technological development proceeds apace, and the future perspective is overwhelming. Production of ' wood-plastic composite ' in particular can lead to the growth of a completely new branch of industry. A future integration of the plastics and forest industries is therefore to be recommended as the use of ' timber-cooperative plastics ' is growing factor and will be greater importance than plastics as a competitor.

It is clear that the basis for a price drop of similar dimension must be attained sooner or later, but producers are still reckoning on the possibility of more economical technology and larger plants. It seems to be ' time ' is in favour of plastics as regards price development. An industry whose raw material spurts out of the earth in a flash has in general, an important advantage over one that must wait 50 to 100 years for the raw material to mature.

Moreover, the higher log prices increases, the more demanding countries would accelerate to develop wood-substitute materials.

The challenges facing the forest product are formidable but not insurmountable. The forest industry has faced numerous traumatic events in its history and has overcome serious economic obstacles successfully. Certainly, technical, marketing and managerial innovations have occurred in the forest products industry throughout its history. The overriding challenge facing the industry today is to accelerate the current pace of innovation to safeguard economic ground to more aggressive competitors (eg., substitute materials etc.).

3.4 Competitive Advantages & Disadvantages for New Zealand Forestry

In previous sections, factor interactions between demanding and supplying-side were examined. In this section, the competitive advantages and disadvantages for New Zealand forestry are summarized on the basis of the above factor interactions.

3.4.1 Advantages

* Favourable climate for growing

The primary source of competitive advantage for New Zealand forest products industry is its fast-growing trees, which facilitate a reasonably low-cost position.

That is, the comparative advantage of New Zealand forestry is often seen to be the favourable growth rates stemming from an equable climate and the fortunate introduction of such a versatile tree as Radiata pine.

* Accumulated experience & research

The New Zealand industry also benefits from the experience of harvesting several generations of its key plantation forests. New Zealand foresters know exactly how to extract optimum growth rates from their combination of natural factors. The well established technology of plantation management resulting from 60 years of practical experience. This confers a significant head start on many countries. This has been central to the international expansion of New Zealand forest products multinationals. The recognition that research in growing, processing, marketing and the interrelationships of each, together with swift application of that research, represents, the cutting edge by with the technological lead must be maintained.

* Intensive plantation forestry

There are several options for the export of the timber resources coming on stream in New Zealand. Compared to other nations, New Zealand grows a high percentage of high-quality logs. Much of New Zealand's forest resource has been intensively managed. An intensive management regime that has produced a high-quality resource, with a high proportion of wood suitable for sawing.

* Government encouragement

The cohesiveness of state and private sector in advancing plantation forestry and processing and the considerable encouragement consistently given by government. Its industry is based on plantation forests, which are not subject to environmental controversy.

* Availability of resource

New opportunities and challenges will become available to the local industry as large amounts of quality clearwood timber become available over the next decade. Meanwhile, the market for the product is expanding. Prices are expected to rise in the 1990s. New Zealand is potentially well placed to serve this market.

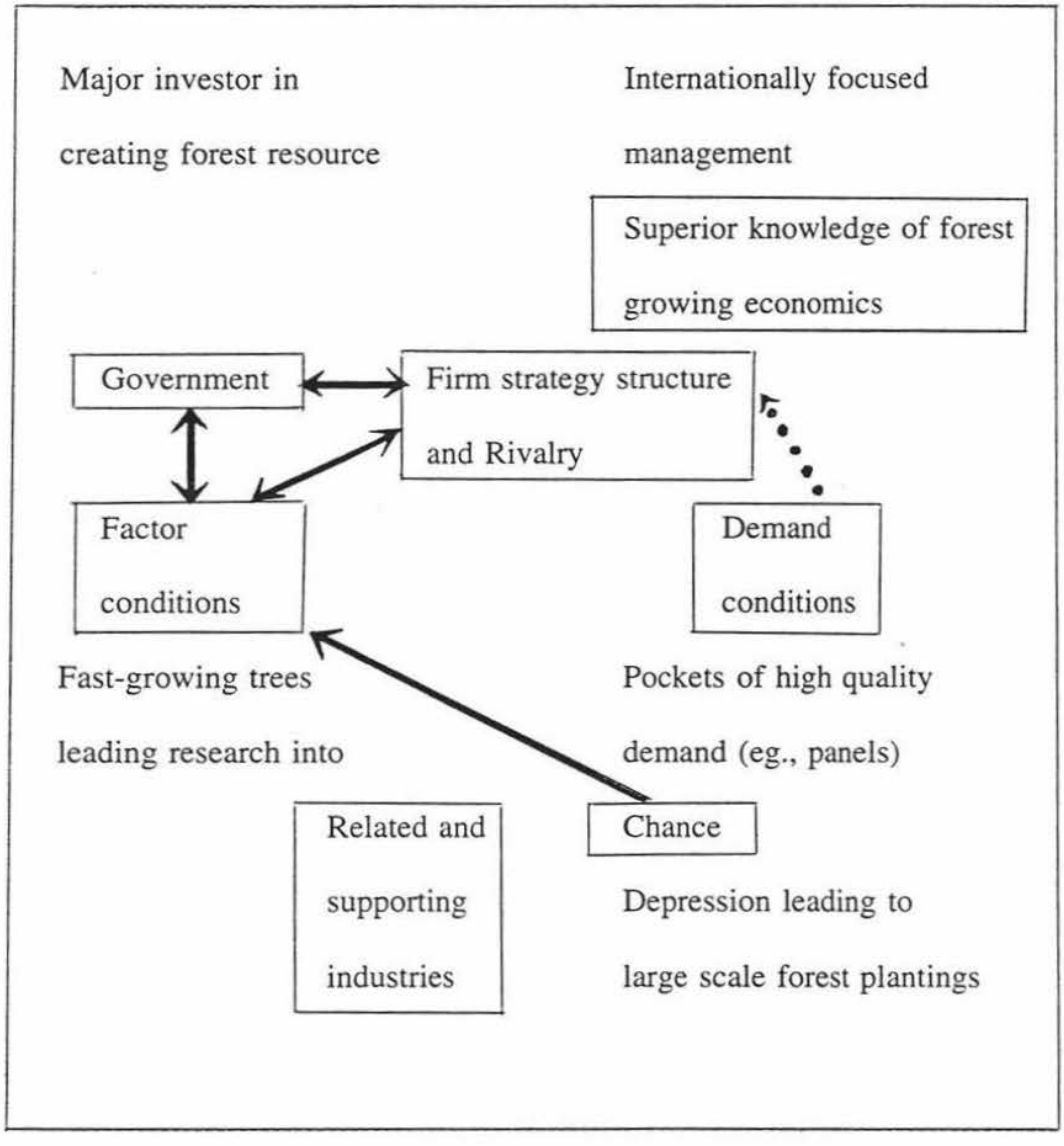
* Ease of processing \ treating

Two types of processing, kraft pulp and medium-density fibreboard(MDF), are not seriously disadvantaged by New Zealand's position. Neither relies heavily on the elements in which New Zealand suffers high costs, and both draw strongly upon New Zealand's strength as a producer of fast-growing Radiata pine.

The sources of advantages for New Zealand forest products industry are illustrated as following Figure 3.4.

Figure 3.4 New Zealand Forest Products Industry

Sources of Advantages



Source : Case Analysis, Porter project 1991

3.4.2 Disadvantages

New Zealand has the following weaknesses in competitiveness of forest products industry:

* Energy & electricity costs

New Zealand's electricity costs are not high compared to those of other industrialised nations in general. However, by comparison with other forest-product producers, including those in the OECD, New Zealand electricity costs are in the middle to upper range. Natural gas prices are also said to be uncompetitive. The high marginal cost of increasing electricity supplies in New Zealand --- and newsprint and pulp mills are very energy intensive --- may put a major hindrance on expanding the output of these products. Nevertheless, much of the large increase in roundwood supplies which is becoming available from 2000 onwards, is mainly suitable for pulping.

* Transportation costs

Location has been an advantage for New Zealand firms in certain markets. Transport costs are higher in New Zealand than in other forest-product countries. However, New Zealand is closer to the Australian and East Asian markets than most of its competitors.

Actual delivery costs are therefore often lower in these markets for New Zealand producers than for potential competitors. Internal transport costs vary greatly but account for 60% of total domestic log costs. Shipping costs comprise 30% of total log export costs with port handling costs comprise 76% of total costs of the delivered price of export logs.

* Labour cost

Labour costs are relatively high in the New Zealand forest-products industry. While wages are modest by international standards, productivity is lower than in other countries. Low productivity of labour, the natural result of years of protection, has hindered New Zealand's ability to compete in processed-wood products. In many instances, further processing of raw materials in New Zealand subtracts, rather than adds value.

* Foreign investment

Overall, foreign investors' views of New Zealand are best neutral. New Zealand is too small, too remote, culturally immature, with a history of poor labour market conditions and a total lack of any form of explicit incentive in respect of foreign investment.

* Marketing capability

New Zealand seems to lack overseas marketing specialists and strategy, particularly for Asian pacific rim. There is not a pool of manpower experienced in export marketing of forest products on which to draw. Considering the future of New Zealand's plantation forestry will depend on competitive marketing, there is a need to develop expertise to face the major increases in supply.

* Related & supporting industries

New Zealand lacks the momentum that dynamic clusters of related and supporting industries can provide. The lack of related and supporting industries in New Zealand minimizes the potential to build broaden and widen the basis of sustainable advantage.

The strengths and weaknesses in New Zealand forest products are summarized as the following Table 3.20.

Table 3.20 New Zealand Forest Products Strengths & Weaknesses

	Advantages	Disadvantages
Growing	. Favourable climate . Accumulated experience . Government costs	. Competition from virgin logging
Lumber	. Ease of sawing\treating	. High cost of capital . Low productivity . Outdated technology . Poor image of Radiata pine
Pulp & Paper	. Availability of resource . Cheap transport to Asia	. Low productivity . High costs

Source : Case Analysis, Porter project 1991

3.5 Discussion

This chapter reviewed strategic factors on the demand and supply side which currently affect New Zealand's forestry internationalisation. Considering the multi-functional characteristics of forestry, it is important to understand a complex system of dynamic interactions among the factors in this rapidly changing global economy. ' Time ', as noted earlier, is a significant factor not only the growing of forests but also it could impact on overall forestry environment --- physical, social, political, ethical, economic --- but it brings change in the nature of the resource itself (eg., particularly, changes in demand pattern etc.). Some foresters forecast that the environmental value of forest (as a non-timber value) will become more important position than timber-value (as a material) in the future. In order to challenge those changes, it requires to investigate and identify the strategic factors in depth in preparation for forestry globalization.

Even though the above issues are general and already known facts, it cannot be denied that they are fundamental and crucial ones confronted the New Zealand forestry industry. Among them, some factors would impact on New Zealand forestry as centripetal forces (such as foreign investment & environmental pressure) while others work as a centrifugal pressures (eg., competition with other wood-producers and demand pattern change, trade barriers etc.). It mainly depends on New Zealand's own ability and strategy how to challenge those opportunities.

In this context of the thesis, the strategic factors investigated and identified serve as information needed to set up a comprehensive investment structure for forestry development.

From an economic point of view, the principal issue for the New Zealand forest products industry is the form in which its timber resources are exported. The question is whether the maximum value can be obtained from the resource. From the foreign investors' viewpoint, the greatest attraction in New Zealand is the resource quality and increasing availability.

However, this can be purchased in an export log\ chip form without requiring investment in processing in New Zealand. Therefore, it needs to develop a new system which combines investment with trade together such as modified system which is proposed in this thesis.

The scale of new investment possibilities in New Zealand by the forestry industry is substantial, particularly when they also have to account for regional investment portfolio factors in conjunction with infrastructure sectors etc. Participation by these New Zealand corporates is more likely to involve well-structured joint ventures, provided the foreign partner finds New Zealand investment attractive. The real issue here is not the relativity of the new investment values to various yardsticks but rather : Will the New Zealand projects be judged as generating a margin in the market place over delivered cost that is a sufficient and sustainable level, given the risk profile relative to other global investment opportunities ?

In other words, the development determinant for New Zealand is not one of simple cost competitiveness or scale of investment --- it is the more complex issue of relative investment attractiveness.

The most probable outcome is that the future level of actual new processing investment in New Zealand's forest industry will be substantially below the possible processing investment because : when risk relativity is included in comparisons of financial return for greenfield site (ie., a new operational site) investment, New Zealand's returns are mediocre compared with returns from greenfield opportunities in other countries with softwood surpluses.

New Zealand's opportunities primarily require a greenfield site but these will be competing with principally brownfield expansion (ie., on existing operational site) and corporate acquisition opportunities from overseas (for instance, currently second-hand pulp\ newsprint mills can be purchased for half the price of a new mill in New Zealand). Particularly, a large proportion of recent activity is wood processing investment in brownfield such as upgrade \ expansion, addition on existing facilities as we've already seen in Table 3.14. These have superior risk \ return profiles to greenfield opportunities in New Zealand.

Joint venture and long-term contract make the wood supplier heavily dependent on the importing partner and tends to keep down margins. However, even though the margins tend to be kept down, it has more benefit in the long run as it effectively eliminate risks for the outlets by ensuring long-term stable overseas market.

Joint venture or long-term bilateral arrangement could play vital role to ensure future New Zealand forestry export market under current situation.

More detailed bilateral arrangement will be explored in chapter 5.

CHAPTER FOUR

ASIA PACIFIC RIM CONTEXT AND BILATERAL FORESTRY TRADE BETWEEN NEW ZEALAND AND KOREA

4.1 Asia Pacific Rim Context

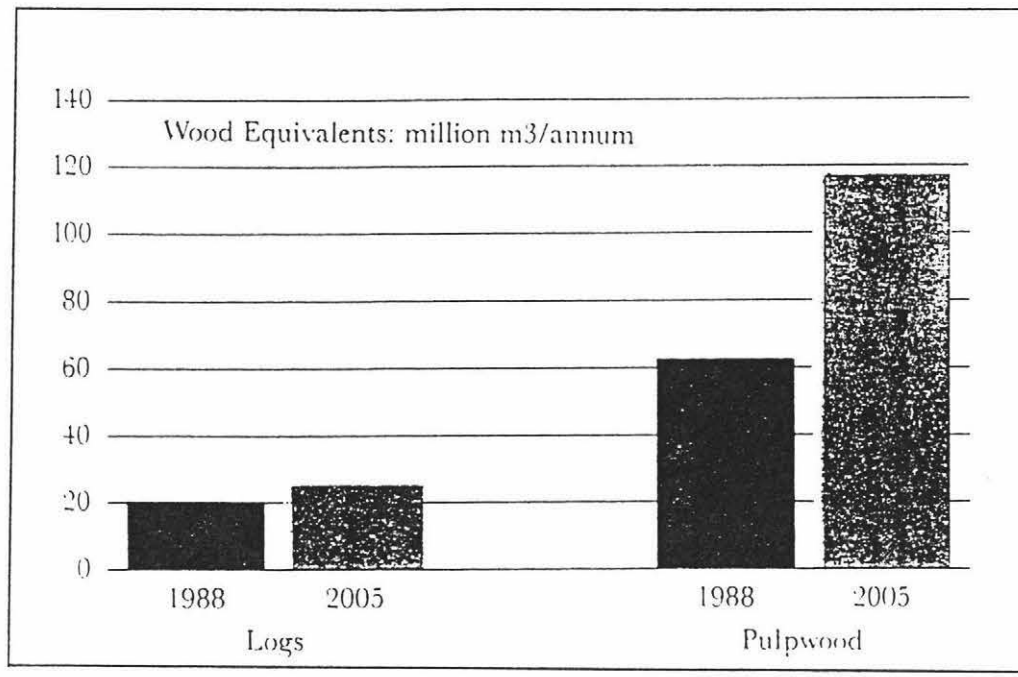
4.1.1 General Background

Pacific Asia comprises those countries in Asia which border the Pacific ocean. It is a wood-fibre deficit region of the world, and this trend is expected to continue in the 1990s. The demand for forest products in particular will be grow faster than the average global rate. In the longer term, improving living standards will change the overall structure of demand, with increasing emphasis on the import of higher value-added products. In parallel with a reduction in domestic processing industries, there continues to be difficulty in obtaining access to raw material supplies.

New Zealand is competitive in the region as an international trader, due to the geographic position in terms of transportation costs compared to similar resources,(eg., Chile) and because it now controls a large, fast-growing plantation resource of Radiata pine.

If an Asian trade bloc forms and Australia were included Asia, then more than 90 per cent of New Zealand forestry exports are going to Asia.

Figure 4.1 Wood-fibre Deficit in Pacific Asia



Source : Jaakko poyry, 1992

4.1.2 Implications for New Zealand

New Zealand will need to focus primarily on Pacific Asia as import demand in USA, Canada and South America will be minimal due to ample capacity within these regions, while continuing capacity growth in Western Europe will lead to intense intra-regional competition (eg., Scandinavian competitors in European market etc.). The reasons for this are discussed follows :

1. The Asian Pacific Rim is a densely populated area with scarce forest resources compared to population with expected high economic growth especially in NICs. Many of the markets which seem to offer the greatest potential for future New Zealand exports are developing countries, particularly in the Asian region. An effective marketing strategy, therefore, is essential to ensure long-term stable sales in these wood-deficit countries.

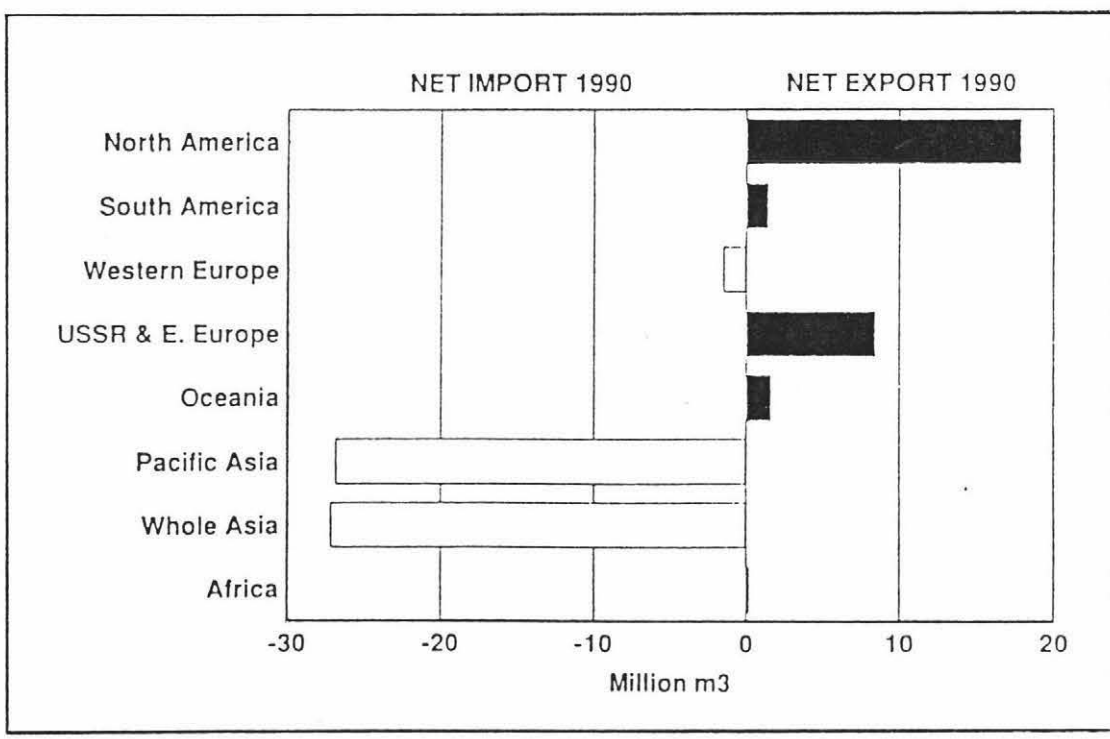
2. As a small supplier to large markets, New Zealand's logical strategy is to carefully segment the markets and attempt to satisfy needs where New Zealand can enjoy a comparative advantage. As forest products are bulky compared to their value, the further away the consumer market is located, the less profitable the product becomes due to the freight cost. Because of high freight costs, New Zealand potential markets will tend to be situated in South-east Asia, the Middle East and around the Pacific Rim.

3. The domestic production capability of North and South American countries limits prospects for profitable exports to those countries. Even though Southeast Asia countries (eg., Indonesia, Malaysia and Philippines etc.) have greater comparative advantage in terms of accessibility to the Asian Pacific Rim than New Zealand, they are confronted with log export bans due to environmental pressure attempting to stop the depletion of tropical hardwood forests. Also, North America (eg., U.S. west pacific and Canada's British Columbia) is situated at an equivalent distance from the Asian Pacific Rim as New Zealand, but they have already established substantial local markets and are faced with log export restrictions due to environmental pressure.

4. Over the next 10-20 years, there will be a major increase in the volume of wood available from New Zealand's production forests. At a national level, the total harvest is forecasted to rise by 40% from the current 13.5 million CUM(cubic metre) \ year to 19 million CUM \ year by the end of this decade. It means New Zealand's wood surplus could supply wood-deficit countries and will require an expansion of existing markets and the development of new markets, particularly in the Asian region.

The following diagram illustrate that Pacific Asia is the main world market for softwood logs.

Figure 4.2 Pacific Asia for Softwood Logs Market



Source : Jaakko Poyry, 1992

4.1.3 Main Trade Partners in Asian Market

In order to fully realise the potential of the resource and compete successfully in overseas markets, the sector's efforts must be carefully planned and coordinated. In view of the implications of these issues, the need has been identified to develop a sector strategy within a national context.

Pacific Asia, particularly, China \ Japan \ Korea, is the dominant importer of both logs and pulpwood.

4.1.3 (a) China

China represents a major long-term opportunity for New Zealand Radiata pine when economic policy develops to allow demand to be met by imports. The potential import level is judged to exceed 10 million CUM annually once the economic policy shift occurs.

Along with dwindling supplies both in China and from traditional sources, China's consumption of timber is likely to increase dramatically as incomes rises, and the population increases. A recent FAO study predicted that sawn timber consumption will increase from the 1990 level of 23.8 million CUM to 78.1 million CUM in 2010. Likewise, consumption of wood-based panels will increase from 4.4 million CUM to 15.0 million CUM.

This would require an additional 124.6 million CUM of round wood.

New Zealand's forestry trade with China has increased at a dramatic rate in the last year.

Table 4.1 summarised the situation.

Table 4.1 New Zealand Exports of Forestry Products to China

	1989 (ye June)	1989	1990	1991	1992	1993
Logs						
-volume (m^3)	44,451	307,406	180,362	233,993	151,938	791,547
-value ($000)	2,791	22,833	13,733	25,866	12,358	74,206
Sawn timber						
-volume (m^3)	-	529	709	-	1,006	509
-value ($000)	-	122	185	-	335	196
Wood pulp						
-volume (t)	46,998	36,067	13,627	19,012	43,774	16,206
-value ($000)	33,771	26,333	11,101	13,653	24,201	8,325
Paper & paperboard						
-volume (t)	0	3,881	8,809	5,056	-	6,542
-value ($000)	2	2,476	6,248	2,932	-	3,282
Panel products						
-volume (m^3)	-	8	-	-	600	1,051
-value ($000)	-	9	-	-	249	500
Other Forestry Products -value ($000)	3	1,022	7		11	116
Total ($000)		52,795	31,313	42,451	37,153	86,626

Source : Ministry of Forestry, Statistics 1992

One of the feasible alternatives to penetrate the Chinese market is to enter into joint venture with a Chinese corporation. The joint venture will aim mostly at transferring technology to maximise the value gained from Radiata pine, at the same time as securing a market for New Zealand wood. If New Zealand is to gain the best possible price for the exports, it is important that Radiata's potential should be upgraded. A New Zealand contribution via a joint venture could predominantly consist of supplying technology and expertise in processing and marketing.

4.1.3 (b) Japan

Japan is the world's second-largest producer of paper and paperboard and fourth-largest producer of sawnwood. However, it is heavily dependent on imports of wood and wood products. Total forest products consumption in 1989 was 112 million CUM roundwood equivalents (RWE), of which 72% was imported in some form. Raw wood consumption totalled 86.3 million CUM (RWE), sourced and utilised on the following estimated basis:

North America(38%) and Malaysia(36%) are currently the main suppliers of log imports. North America dominate softwood (39%) and hardwood (23%) pulpwood imports, while Australia shares 27% of hardwood pulpwood imports.

Radiata pine log prices are significantly below the price from other sources, largely reflecting deeply held species preferences, and differences in basic quality \ performance characteristics. Radiata pine's significant end-use share (20%) is in packaging applications, but Japanese Larch(30%) and North American Hemlock and Douglas Fir(30%) hold larger shares in this 3 million CUM\year market.

New Zealand's pulpwood exports to Japan are insignificant.

Table 4.2 Estimated Raw Wood Usage in Japan

	Million m^3 (RWE)	Percentage of total usage	Percentage of supply imported
Sawmills (net of residue flows)	37.77	43.8	58
Pulp and paper	37.40	43.3	49
Panels and others	11.13	12.9	50
Total	86.30	100.0	WA = 53*

* WA = weighted average

Source : FAO, 1990

4.1.3 (c) Korea

The total log market is 10 million CUM \ year, 85% supplied by imports. New Zealand's share is 13% of the total market, but Malaysia and the USA dominate the imports (collectively 60% total market share). Sawnwood for temporary use in construction and packaging comprises 65% of total log end-uses, and plywood 20%. Almost no wood is used in permanent high-rise building construction. New Zealand Radiata pine's major opportunity is the temporary construction and packaging segments, and an annual import volume of 2-3 million CUM is considered to be the potential market in the year 2000. The peeler market is much more limited for New Zealand's Radiata pine with a potential of 100,000 CUM by the year 2000. Although import usage data for pulping are unreliable, the local industry is focused primarily on waste paper and market pulp as raw materials.

More detailed bilateral trade between Korea and New Zealand will be followed in section 4.2.

The following Table 4.3 summarises 12 years average (1979-1990) trade share in Asia pacific countries and New Zealand on principal forest products in world trade.

Table 4.3 Principal Forest Products Trade in Asia pacific & New Zealand (1979-90)

Product	Unit (000)	Production	Imports	Exports	World Trade Share (%)	Directions of Trade (%)
Raw Materials						
Coniferous logs	CUM	658736	31802	31659	. Imports: Korea(8) China(14) Japan(51) ROW(27) . Exports: NZ(3) ROW(97)	. New Zealand Export(887CUM) share : Korea(27) China(6) Japan(61) ROW(3)
Non-coniferous (NC) logs	CUM	263738	34268	33802	. Imports: Korea(13) China(14) HK(2) Spore(1) Japan(43) ROW(27) . Exports: Asia NICs(1) ROW(99)	
Pulpwood (Round & Split)	CUM	123929	22048	20472	. Imports: China(6) Japan(4) ROW(90) . Exports: ROW(100)	
Woodchips	CUM	——	18450	17602	. Imports: China(3) Japan(77) ROW(20) . Exports: Australia(37) NZ(3) ROW(60)	. Australia Exports(6531CUM) share: China(2) Japan(91) ROW(6) . New Zealand Exports(587CUM) share: China(1) Japan(95) ROW(4)

Product	Unit (000)	Production	Imports	Exports	World Trade Share (%)	Directions of Trade (%)
Processed products						
Coniferous Sawn timber	CUM	348167	70206	71887	. Imports: Japan(7) Australia(1) ROW(91) . Exports: NZ(1) ROW(99)	
Non- coniferous (NC) Sawn timber	CUM	116653	13628	13297	. Imports: Korea(2) China(4) HK(1) Spore(15) Japan(8) Australia(2) ROW(75) . Exports: HK(1) Spore(7) ROW(91)	. Singapore Exports(961CUM) share: Korea(1) China(6) HK(1) Japan(4) Australia(2) ROW(85) . HongKong Exports(51CUM) share: China(86) HK(2) ROW(11)
Plywood	CUM	45222	9285	9897	. Imports: Korea(2) China(6) HK(4) Spore(6) Japan(10) Australia(1) ROW(72) . Exports: Korea(4) China(7) HK(1) Japan(1) ROW(87)	. Singapore Exports(645CUM) share: Japan(1) ROW(86) . HongKong Exports(124CUM) share: Korea(1) China(96) ROW(3) . China Exports(671CUM) share: HK(7) Spore(3) Japan(4) Australia(2) ROW(84) . Korea Exports(451CUM) share: Asia NICS(1) Japan(1) ROW(98) . Japan Exports(9CUM) share: HK(1) ROW(99)
Veneers	CUM	4757	1944	1708	. Imports: China(3) HK(1) Spore(3) Japan(15) Australia(1)ROW(78) . Exports: Spore(1) Japan(3) ROW(95)	. Japan Exports(47CUM) share: China(67) ROW(33)

Product	Unit (000)	Production	Imports	Exports	World Trade Share (%)	Directions of Trade (%)
Reconstituted Products						
Particleboard	CUM	45780	11114	6780	. Imports: China(1) Japan(1) ROW(98) . Exports: Asia NICs(1) NZ(1) ROW(98)	. New Zealand Exports(10CUM) share: Japan(11) ROW(89)
Woodpulp	MT	136830	22254	22457	. Imports: Korea(3) China(4) Japan(11) Australia(1) ROW(81) . Exports: NZ(2) ROW(98)	. New Zealand Exports(491CUM) share: Korea(5) China(6) Japan(47) Australia(16) ROW(25)
Newsprint	MT	28402	13839	13433	. Imports: China(2) HK(1) Spore(1) Japan(2) Australia(2) ROW(93) . Exports: Japan(1) NZ(1) ROW(98)	. New Zealand Exports(163CUM) share: China(2) HK(1) Australia(50) ROW(48) . Japan Exports(21CUM) share: China(11) Australia(5) ROW(84)
Printing & Writing papers	MT	51465	10372	10538	. Imports: China(1) HK(1) Spore(1) Australia(3) ROW(93) Japan(1) . Exports: Korea(1) China(1) Japan(2) ROW(96)	
Other papers & paperboard	MT	115787	17173	17984	. Imports: Korea(1) China(4) HK(4) Japan(3) Australia(1) ROW(87) Spore(1) . Exports: Korea(1) China(1) HK(1) Japan(2) NZ(1) ROW(93)	. Japan Exports(494MT) share: China(25) HK(21) Spore(2) Australia(3) ROW(48) . Australia Exports(223MT) share: ROW(100) . China Exports(40MT) share: HK(30) Spore(4) Japan(11) ROW(55)

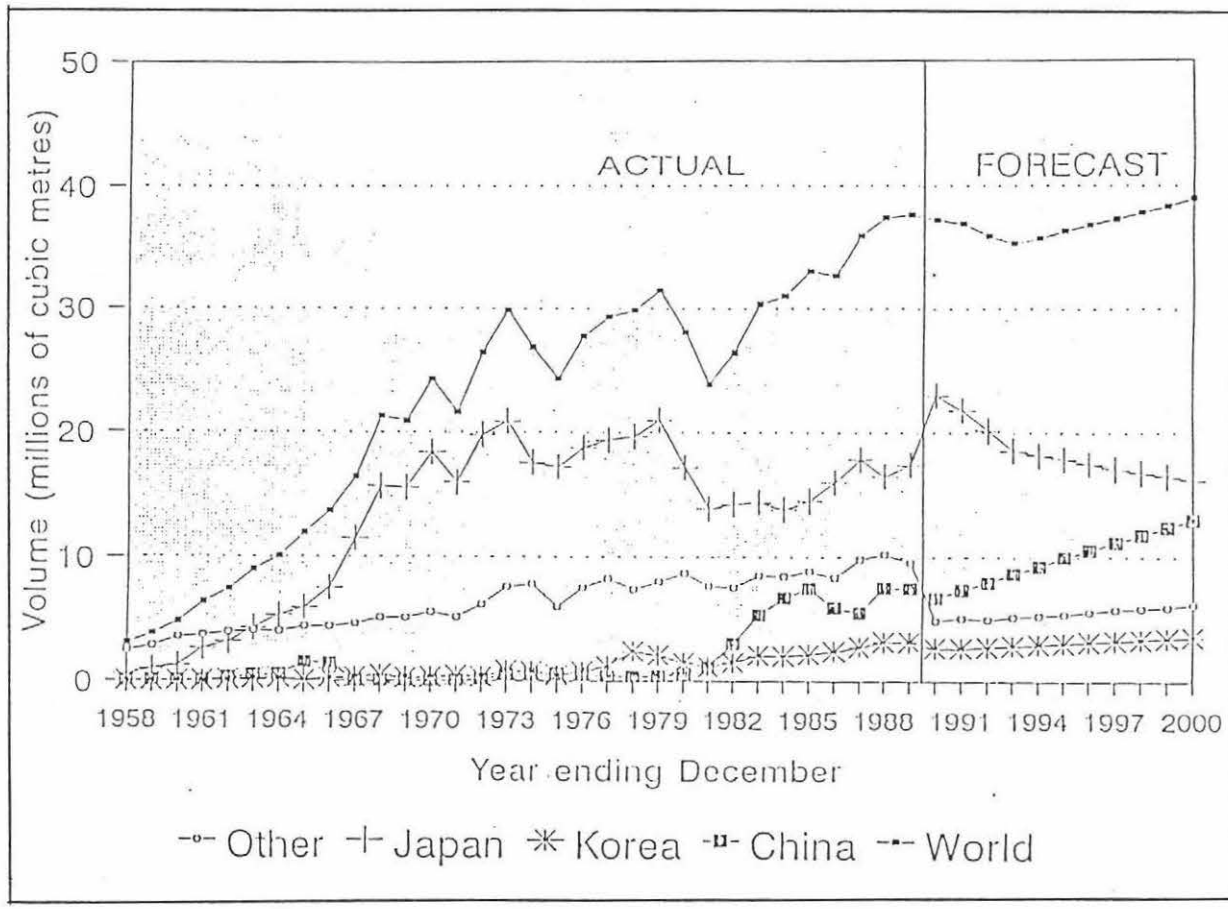
Source: FAO Yearbook of Forest Products, 1990

Note : ROW means " Rest of the World" , and NICs include Korea, China, HongKong & Singapore. Taiwan is included in China.

The Figure 4.3 is the FAO forecast on world imports of coniferous logs in major Asia pacific countries. World demand shows slow increasing trend after 1991 and Japan's import is declining compared with Korea's slow growth and rapid increase in China.

Figure 4.3 Wood Imports of Coniferous Logs

by Country of Destination (1958-2000)



Source : FAO yearbook of forest products, 1989

4.2 Bilateral Forestry Trade between New Zealand and Korea

4.2.1 Introduction

Despite slower economic growth in 1989 and 1990, imports of forest products to the Republic of Korea have continued to expand. The total value of trade in real terms has increased significantly since 1986 (Table 4.4) and in 1990, forest product imports increased 11% over 1989 levels to $ US 1.5 billion (CIF). In the same period, New Zealand sales increased 53% to US $ 100 million(CIF), 93% of which was accounted for by log sales.

Although Korea is traditionally a log market, there is an overall trend towards increasing imports of processed products. Log imports' share of the total value of forest product imports has dropped from 97% in 1980 to 64% in 1990 (Table 4.4).

The largest increase in import value between 1989 and 1990 by product category was particleboard (36%) followed by plywood(33%). However, the value of sawn timber imports dropped between 1989 and 1990, after increasing steadily between 1986 and 1989. This suggests that sawn timber from Korea's domestic sawmills is still able to compete with imported lumber. Imports of fibreboard (largely MDF) also declined between 1989 and 1990 as a result of increased domestic MDF production capacity.

Table 4.4 Value of the Republic of Korea's

Forest Products Imports ($US million CIF)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Sawlogs										
Total	644.7	608.4	587.4	564.3	483.5	481.9	648.0	899.9	960.3	990.5
Hardwood	516.7	464.3	414.4	392.2	308.3	301.4	418.9	524.1	512.1	464.3
Softwood	128.0	144.1	173.0	172.1	175.2	180.5	229.1	375.8	448.2	526.2
Sawn timber										
Total	18.0	17.8	22.7	28.8	29.2	42.8	71.7	129.9	169.3	166.6
Hardwood	15.3	15.7	20.7	25.5	27.0	40.5	68.9	115.9	144.5	144.6
Softwood	2.7	2.1	2.0	3.3	2.2	2.3	2.8	14.0	24.8	22.0
Plywood	9.6	7.0	6.7	6.8	5.0	11.6	11.1	104.6	172.8	256.2
Veneer	8.4	14.4	17.9	19.2	18.1	11.8	10.5	19.4	21.5	25.6
MDF	0.2	0.4	1.3	3.2	7.1	10.4	6.6	20.9	33.2	27.1
Particleboard	0.1	1.0	7.1	8.1	7.5	10.6	18.4	42.6	45.2	70.9
TOTAL	681.0	649.0	643.1	630.4	550.4	569.1	766.3	1217.3	1402.3	1536.9

Source : Office of Customs Administration, Republic of Korea

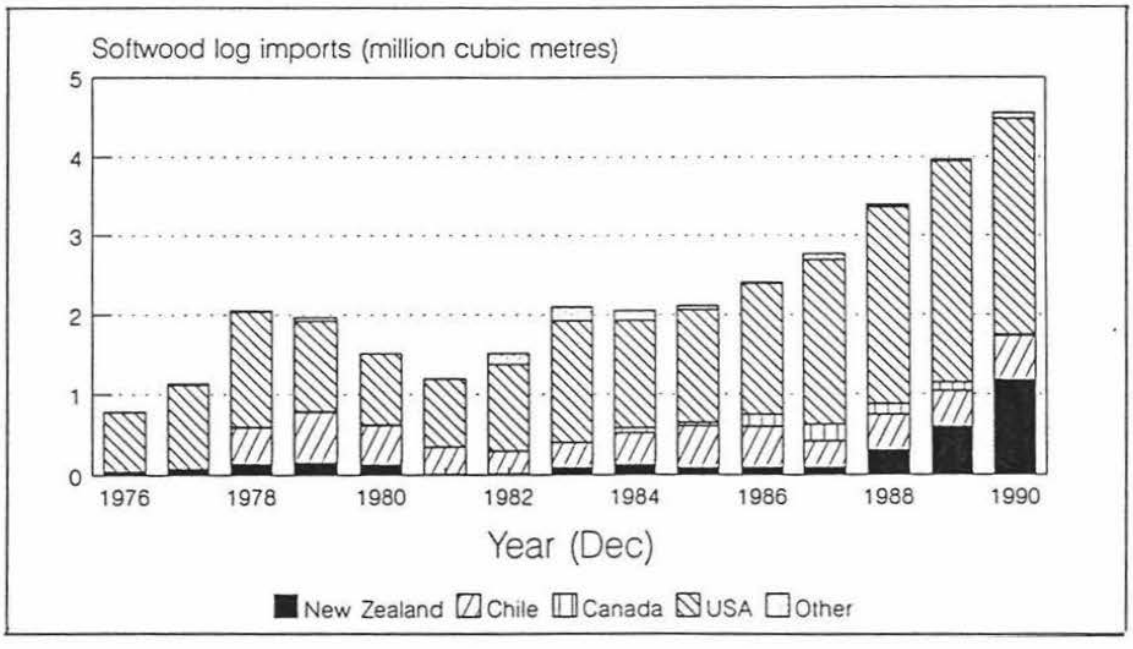
4.2.2 Details of Korea's Forestry Trade Pattern

4.2.2 (a) Log

Historically, Korea has imported predominantly hardwood logs for both sawn timber and plywood production. Since the early 1980s, as a result of a decline in availability of tropical hardwood logs, the majority of tropical hardwood log imports have been used for peeling rather than sawing.

Log imports have contributed around 80-85% of Korea's total log consumption for the last 15-20 years. By 1990, New Zealand's share of the value of log imports had increased to US$ 94 million (CIF) or 9.5% of the total. In 1990, the corresponding figure was US$ 43 million or a 4.5% share. Softwood log imports accounted for 53% of the total value of logs imported by Korea compared with 21% in 1980. Imported softwood logs have increasingly substituted for tropical hardwood logs as raw material for the sawmilling industry. Softwood log imports, as a result, increased from 12%(0.8 million CUM) of Korea's total log imports in 1976, to 55% (4.5 million CUM) in 1990. Growth in demand for softwood logs has largely been met by USA, New Zealand and Chile (Figure 4.4).

Figure 4.4 Republic of Korea Softwood Log Imports



Source : Office of Customs Administration, ROK

The USA is the major supplier of softwood log imports, but between 1989 and 1990 lost market share to New Zealand. Imports of USA softwood logs declined slightly from 2.8 million CUM in 1989 to 2.7 million in 1990.

New Zealand's share of the softwood log market has increased significantly. As recently as 1987, New Zealand's log imports contributed as little as 3% of softwood imports, while, in 1990, 26% (1.2 million CUM) of softwood log imports were sourced from New Zealand.

New Zealand Radiata pine is the principal species traded, and competes with USA Hemlock and Douglas Fir. The USA share of the softwood log market dropped from 75% in 1987 to 60% in 1990.

Chile's market share declined significantly from 25% in 1985 to 12% in 1987 and has since remained steady. Chile --- New Zealand's only Radiata pine-producing competitor in Asian log markets --- also supplies Japan and the ROK (Table 4.5).

Softwood log exports to Korea from New Zealand increased to around 1.5 million CUM in 1991 (25% increase) (New Zealand Ministry of Forestry 1992).

Table 4.5 Volume of Log Imports from New Zealand & Chile (unit:CUM)

Year ending December	TO: / FROM:	Japan		Republic of Korea	
		New Zealand	Chile	New Zealand	Chile
1978		774,931	93,023	140,220	449,521
1979		963,211	210,526	(missing data)	
1980		777,343	306,629	133,994	481,595
1981		497,298	62,346	12,148	335,218
1982		421,101	79,800	19,205	384,773
1983		312,636	220,153	93,638	413,589
1984		305,625	353,154	124,974	461,562
1985		294,247	378,858	88,190	548,836
1986		259,850	269,649	90,762	513,795
1987		388,978	243,870	92,725	326,679
1988		569,218	215,724	309,605	437,929
1989		755,511	241,214	596,798	444,783
1990		1,135,610	311,390	1,178,187	554,900

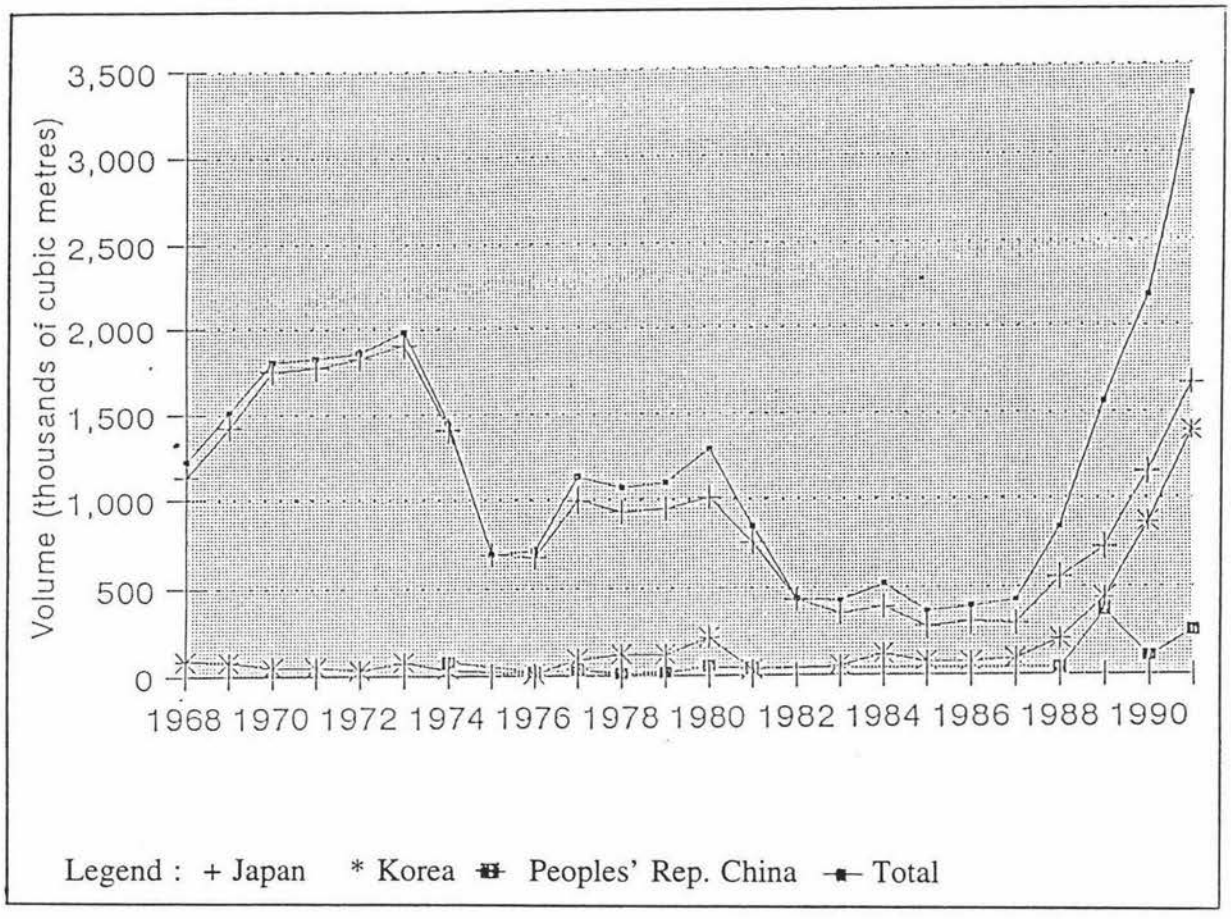
Note) Japan data are for pine logs only; Republic of Korea data include all coniferous logs.

Source : Japan Tariff Association, ROK Office of Customs Administration

Since 1988, margins between New Zealand log prices and USA Hemlock and Douglas Fir have widened. New Zealand exporters have been able to take advantage of the higher USA log prices to increase New Zealand's share of the softwood log market from 2% in 1987 to 26% in 1990.

Figure 4.5 shows rapid increase of New Zealand log export to Korea and Japan since 1987.

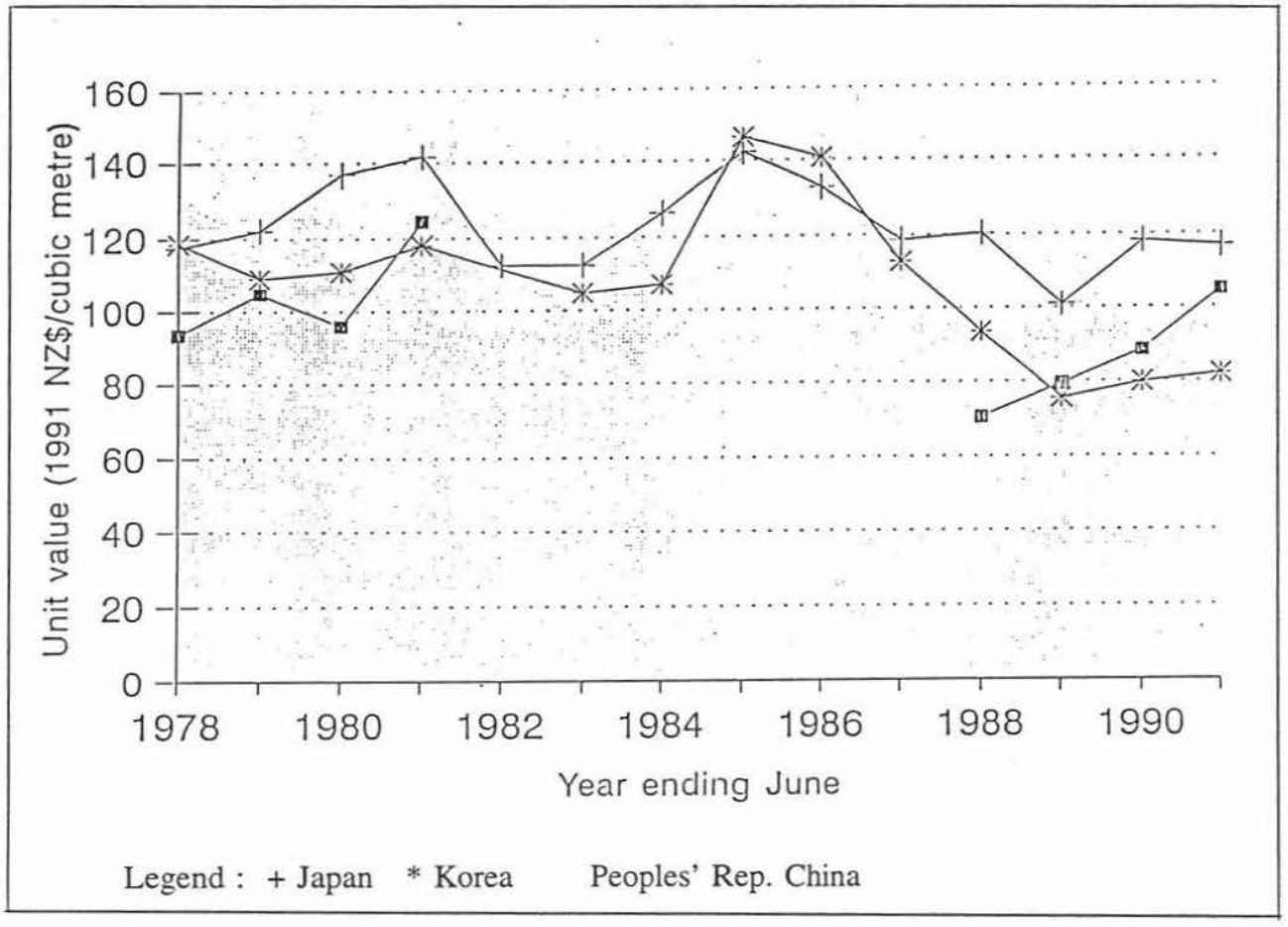
Figure 4.5 Volume of New Zealand Log Exports by Country of Destination (1968-91)



Source : New Zealand Dept. of Statistics, INFOS Database

Real F.O.B unit values for log exports from New Zealand are given in Figure 4.6 : differences according to destination probably reflect log quality differences. The real unit value (based on New Zealand dollars) trend for logs exported to Japan has remained virtually constant since 1978. Real unit values for log exports to Korea show a marked downward trend from 1985 to 1989, with very little change since 1989.

Figure 4.6 Real Unit Value (F.O.B) of New Zealand Log Exports by Country of Destination (1978-1991)



Source : New Zealand Dept. of Statistics, INFOS Database

4.2.2 (b) Sawn Timber

i) Imports

The sawn timber market in Korea has increased significantly since 1985, with most sawn timber consumed being processed locally. Between 1987 and 1989 the volume increased 121% from 413,000 CUM to 914,000 CUM. However, sawn timber imports declined in 1990, as more of the lumber demand was met by softwood lumber sawn in domestic sawmills.

Industry sources in Korea indicated that it is still economic for Korea to saw imported logs vis a vis importing lumber. But in the future, as log prices and labour rates increase, Korea will begin to import both hardwood and softwood sawn timber on an increasing scale.

Domestic sawn timber production has increased 264% since 1985 to reach 7.8 million CUM in 1990. Thirty four per cent of the log volume sawn is now imported, and as estimated 75% of imported logs sawn are softwood. Although imported sawn timber makes up a comparatively small percentage of the total used, the proportion is slowly increasing. About 11% of sawn timber consumed in 1989 was imported, compared with 2% in 1980.

Sawn hardwoods, particularly from Malaysia and Indonesia, account for most of the sawn timber imports.

In 1990, 90% of sawn timber imports were hardwood species. However, sawn timber imports from Indonesia dropped significantly between 1988 and 1990.

This was largely the result of Indonesia's levying taxes on lumber exports in an effort to reduce them and protect its domestic secondary processing industries, e.g., furniture manufacturing. Sawn timber imports from Malaysia have consistently increased and 1990 was no exception (Table 4.6).

Table 4.6 Republic of Korea Sawn Timber Imports by Country of Origin (CUM)

	1983	1984	1985	1986	1987	1988	1989	1990
Malaysia	7,339	21,586	33,661	64,494	153,218	337,458	338,661	528,880
Indonesia	25,669	*47,106	64,129	*135,483	*188,661	*319,693	252,025	43,811
Philippines	1,549	57	7,779	–	309	183	186	677
Singapore	147	1,769	3,993	*4,149	*6,541	*1,859	3,683	2,434
Japan	1,688	555	2,082	1,848	468	8,196	*6,981	*3,835
USA	*30,035	*26,214	*22,884	*31,648	39,019	*46,959	195,415	59,028
Canada	*7,347	*16,388	*5,436	*10,213	12,817	*19,164	64,007	30,591
Other	3,667	1,537	2,283	3,940	12,109	*12,109	*53,456	*21,323
TOTAL	77,441	115,212	142,247	251,775	413,142	745,621	914,414	690,579

Source : Office of Customs Administration , ROK

ii) Exports

In the late 1970s, Korea re-exported between 14% and 16% of its sawn timber production, predominantly to Japan and the Middle East. Between 1981 and 1985, sawn timber exports declined, largely due to a downturn in Middle East construction by Korean companies during this period. Since 1986, sawn timber exports have increased as a result of the favourable Korean-Japanese exchange rate, but declined in 1990. The predominant sawn timber exported from Korea is ' Oregon pine ' to Japan. The real unit value (FOB) of sawn Oregon pine exports to Japan has increased since 1985 (US $ 200-250 per CUM).

Table 4.7 Republic of Korea Lumber Exports by Species (CUM)

Species	1984	1985	1986	1987	1988	1989	1990
Softwood (total)	142,341	119,251	156,970	262,601	250,088	280,095	190,598
Hardwood (total)	2,813	7,597	6,100	5,133	4,194	7,773	3,386
TOTAL	145,154	126,848	163,070	267,734	254,282	287,868	193,984

Source : Office of Customs Administration, ROK

4.2.2 (c) Plywood and Panel Products

Korea's imports of panel products have recently increased as a result of both growing domestic demand and a reduction in tariffs. The domestic plywood industry, in particular, has had to face increasing competition from imports.

Particleboard imports have increased significantly since 1986. In 1990, particleboard imports totalled 773,489 CUM, with 71% sourced from USA. Indonesia is the next most important supplier, while New Zealand supplied 1% of Korea's particleboard imports in 1990 (Table 4.8).

Fibreboard consumption increased almost three-fold, between 1987 and 1989, from 65,000 to 187,700 CUM, but imports dropped in 1990 (77,699 MT) as a result of increased domestic MDF (medium density fibreboard) processing capacity. Imports comprised mostly MDF supplied largely by USA. Hardboard imports have increased, with Chile the major supplier.

Korea has recently expanded its MDF processing capacity, which, along with current import levels, has created an oversupply situation. Consequently, Korea has begun exporting MDF and is now considering exporting to Taiwan, Japan and Hong Kong. Increased domestic production of composite panels has placed pressure on sawmill residues and other pulpwood as raw material supply. It has also made the market more difficult for New Zealand exporters of panel products. However, New Zealand's advantage is its ability to supply a high-quality product and Korea will continue to import MDF as long as they maintain quality standards.

Plywood consumption has increased significantly since 1987. By 1988, Korea had become a net importer of plywood after years as a major exporter ; by 1989, 35% of plywood consumption was imported.

In 1989, the tariff on plywood was reduced to 15% and will continue to fall progressively until 1993. The high tariff on plywood imports prior to 1989 was largely a mechanism to protect the domestic plywood industry which in its peak production years in the late 1970s was the world's largest exporter of plywood.

The major end use of plywood is for concrete formwork, and almost all plywood consumed is knot-free and manufactured from tropical hardwood. Currently, the plywood industry is reluctant to utilise softwood logs because of problems with processing technology and limited market acceptability of softwood in Korea. Indonesia supplied 99% of plywood imports in 1990 (Table 4.8).

Table 4.8 Republic of Korea: Panel Products Import by Supplying Countries (1988-90)

Supplying Countries	Particleboard(CUM)			Fibreboard (MT)									Plywood (CUM)		
				Hardboard			Medium Density Fibreboard			Other					
	1988	1989	1990	1988	1989	1990	1988	1989	1990	1988	1989	1990	1988	1989	1990
USA	165263	265755	548050	4439	3659	1751	35532	53672	40112	5590	6611	1514	149	133	105
Canada	-	-	-	756	-	123	6801	9201	8131	101	1605	226	-	-	-
Chile	22296	18905	24393	-	4589	7930	-	464	-	398	-	-	-	-	-
New Zealand	8541	8425	7635	-	140	141	64	5094	11488	41	-	1674	-	-	-
Japan				-	215	155	27	-	-	1	-	-	219	938	56
Australia	-	-	-	679	193	56	35	-	-	-	-	-	-	-	-
Indonesia	68806	88360	74975	-	-	-	-	-	-	-	-	-	63115	121688	175919
Malaysia	-	-	-	-	-	-	-	-	-	-	-	-	192	165	706
Europe	-	-	-	-	-	-	-	-	-	-	-	-	63	33	263
Other	38683	38005	118436	2050	1811	2844	1263	3523	859	1092	360	243	823	270	1306
Total	303589	419450	773489	7924	10607	13000	43722	71954	60590	7222	8577	3657	64561	123227	178355

Source: Lisa Revinton-Jones, FRI, 1992

4.2.2 (d) Pulp and Paper Products

These markets are generally large and very competitive. However, supply usually exceeds demand. In short, they are ' buyer's market '. A number of recent reports and studies suggest that : i) existing industry capacity exceeds market demand ii) there is likely to be an adequate supply of raw material worldwide to meet the expanding requirements of the pulp and paper industry for the next decades. In this situation, present processing and price information suggests that the establishment of new plants aiming to compete internationally with commodity grade products will be unprofitable or marginally profitable at best, without government support.

New Zealand's possible regional processing options show that in the next 15 years, no economically feasible greenfield kraft mill options (ie., a new operational site) are possible because of limitations on the scale of pulpwood resource within regions. Brownfield expansion (ie., on existing operational site) at the existing central North Island (CNI) kraft mills are anticipated, but this will require pulpwood to be transported from throughout the whole of the North Island because of the constrained availability of pulpwood within the CNI region itself. Any greenfield pulp and paper investments in New Zealand will therefore be limited to mechanically based products eg., BCTMP (bleached chemi-thermomechanical pulp), newsprint, lightweight coated papers etc.

Trends of production, imports and exports during the past 12 years (1979-1990) for pulp & paper products are summarised as follows with associated Table 4.9.

i) Wood Pulp

* Production : New Zealand's wood pulp production during 1979-90(12 years) was on average 1,143,000 MT(metric ton) per year and its share of world production was 0.8 per cent. Korea produced 256,000 MT annual average and its share of world total production was 0.2% with an even distribution over the years.

* Imports : New Zealand's average import is 24,000 MT. Its share is no more than 0.1% of world total during the same period. Korea has imported 666,000 MT annually, and reached the peak 1,080,000 MT, showing an increasing trend in every year.

* Exports: New Zealand exported 491,000 MT \ yearly average (1979-90) and its share is 22,457,000 MT, 2.2% of world total. In terms of value, it accounts for US$ 145,137,000.

ii) Paper & Paperboard

* Production : New Zealand's average annual production was 700,000 MT during the last 12 years and it shares 0.4% of world total with even distribution every year. Korea produced 2,619,000 MT yearly and shares 1.3% of world total. It shows a constant increase every year.

* Imports : New Zealand has imported 72,000 MT average yearly. The periods of 1979-82 shows below average level. Korea has imported 104,000 MT and it shows a big increase.

* Exports : New Zealand's annual exports is 280,000 MT during the past 12 years and occupied 0.7% of world share. New Zealand has exported equivalent volume each year. Korea shows high growth rate every year as well as other NICs.

Table 4.9 Trends of Production, Imports & Exports (Woodpulp, Paper & Paperboard 1979-90)

Item\Unit	Directions of Trade	Annual 1983-87	average %\ +-	Annual 1979-82	average %\ +-	1988	%\+-	1989	%\+-	1990	%\+-	Total Annual	%\+- average
Woodpulp	New Zealand	1126	0.9, -1.5	1102	0.8, -3.6	1211	0.8, 5.9	1259	0.8,10.1	1234	0.8, 8.0	1143	0.8,0.0
Production(Q)	Korea	192	0.2,-25.0	274	0.2, 7.0	313	0.2,22.3	301	0.2,17.6	318	0.2,24.2	256	0.2,0.0
(000 MT)	World	123479	100.0,- 9.8	137324	100.o, 0.4	152598	100,11.5	154407	100,12.8	154421	100,12.9	136830	100,0.0
Imports(Q)	New Zealand	9	0.0,-62.5	13	0.1,-45.8	17	0.1,-29.2	11	0.0,-54.2	11	0.0,-54.2	24	0.1,0.0
(000 MT)	Korea	465	2.4,-30.2	656	2.9,- 1.5	860	3.4, -9.1	912	3.5, 36.9	1080	4.2, 62.2	666	3.0,0.0
	World	19582	100.0,-12.0	22319	100.0, 0.3	25460	100, 14.4	25828	100, 16.1	25833	100, 16.1	22254	100,0.0
Imports(V)	New Zealand	4851	0.1,-22.8	6162	0.1, -2.0	10276	0.1, 63.4	7475	0.0, 18.9	7475	0.0, 18.9	6287	0.1,0.0
(000 U$)	Korea	204538	2.3,-39.5	264242	2.7,-21.9	558719	3.6, 65.2	671259	3.7, 98.5	688215	4.0,103.5	338129	3.0, 0.0
	World	8900018	100.0,-20.9	9666610	100.0,-14.1	15595780	100, 38.6	18195120	100, 61.7	17341328	100, 54.1	11255446	100, 0.0
Exports(Q)	New Zealand	468	2.3,- 4.7	469	2.1,- 4.5	483	1.9,-1.6	568	2.2, 15.7	628	2.5, 27.9	491	2.2, 0.0
(000 MT)	Korea	-	- -	-	- -	-	- -	-	- -	-	- -	-	- -
	World	20022	100.0,-10.8	22461	100.0, 0.0	25806	100, 14.9	26253	100,16.9	25027	100. 11.4	22457	100, 0.0
Export (V)	New Zealand	125161	1.5,-13.8	118614	1.3,-18.3	149796	1.0, 3.2	248628	1.4,71.3	249503	1.6 71.9	145137	1.4, 0.0
(000 U$)	Korea	-	- -	-	- -	-	- -	-	- -	-	- -	-	- -
	World	8509396	100.0,-20.7	9248756	100.0,-13.9	15357472	100, 43.0	17385328	100, 61.9	15816738	100, 47.3	10736742	100,0.0
Paper &													
Paperboard	New Zealand	688	0.4, -1.7	690	0.4, -1.4	700	0.3, 0.0	735	0.3, 5.0	757	0.3, 8.1	700	0.4,0.0
Production(Q)	Korea	1699	1.0,-35.1	2487	1.3, -5.0	3659	1.6, 39.7	4018	1.7, 53.4	4524	1.9, 72.7	2619	1.3,0.0
(000 MT)	World	169448	100.0,-13.4	194899	100.0, -0.4	225638	100, 15.3	231682	100, 18.4	238238	100, 21.8	195654	100,0.0
Imports(Q)	New Zealand	41	0.1,-43.1	79	0.2, 9.7	131	0.3, 81.9	88	0.2, 22.2	88	0.2, 22.2	72	0.2,0.0
(000 MT)	Korea	34	0.1,-67.3	95	0.2, -8.7	175	0.4, 68.3	224	0.4,115.4	234	0.4,125.0	104	0.3, 0.0
	World	33516	100.0,-19.0	41076	100.0, -0.7	49668	100, 20.0	52835	100, 27.7	54652	100, 32.1	41383	100, 0.0
Imports(V)	New Zealand	58524	0.3,-33.3	84137	0.3,-4.1	139940	0.3, 59.5	129188	0.3, 47.2	129188	0.3, 47.2	87758	0.3, 0.0
(000 U$)	Korea	47087	0.2,-62.1	104985	0.4,-15.5	213762	0.5, 72.1	271118	0.6,118.2	292596	0.6,135.5	124229	0.4, 0.0
	World	20265508	100.0,-28.8	25590915	100.0,-10.2	40475024	100, 42.1	44039712	100, 54.6	48253056	100, 69.4	28482033	100,0.0
Exports(Q)	New Zealand	309	0.9, 10.4	261	0.6, -6.8	208	0.4, -25.7	273	0.5 ,-2.5	336	0.6, 20.0	280	0.7, 0.0
(000 MT)	Korea	125	0.4,-45.9	193	0.5,-16.5	376	0.7, 62.8	425	0.8, 84.0	509	0.9, 120.3	231	0.6, 0.0
	World	34365	100.0,-18.1	41554	100.0, -1.0.	50699	100, 20.8	52316	100, 24.7	55217	100, 31.6	41955	100, 0.0
Exports(V)	New Zealand	130422	0.7, 2.8	106745	0.4,-15.8	108341	0.3, -14.6	165859	0.4, 30.8	192277	0.4, 51.6	126824	0.5, 0.0
(000 U$)	Korea	74653	0.4,-53.1	117475	0.5,-26.2	305928	0.8, 92.2	325848	0.8,104.7	392187	0.9,146.4	159162	0.6, 0.0
	World	18911248	100.0,-29.0	23779990	100.0, -0.7	38742528	100, 45.4	41103856	100, 54.3	45267552	100, 69.9	26638240	100, 0.0

Source: FAO yearbook of forest products, 1990

4.2.3 Opportunities for Cooperation between New Zealand and Korea

4.2.3 (a) Importance of Korean Market from New Zealand Point of View

Between 60% and 65% of sawn timber demand is from the construction sector. Dwelling construction is the main activity and demand for housing is expected to remain strong in the next 10-15 years as a result of increasing household formation and a backlog in unfilled demand. A large potential market exists if more structural use could be made of Radiata pine.

In Korea, timber frame house construction is negligible. Apartments are the predominant dwelling type in the urban area and this trends will continue in the future. Moreover, Korea's building code restricts the use of timber for structural applications in multi-storey buildings.

Seventy per cent of sawn Radiata pine is used as ungraded temporary construction material and is not graded, dried, or preservative treated. This has given New Zealand Radiata pine a low-quality image in Korea.

The market for solid wood for joinery and furniture continues to be dominated by hardwoods. Douglas Fir and Hemlock have made some inroads into the door and window frame market. However, there is no evidence of extensive substitution of softwood for hardwood in these sectors.

The current image of New Zealand Radiata pine will need to improve if Radiata pine is to penetrate higher-value end-use markets. This will require extensive promotion of Radiata pine.

Other market opportunities for sawn Radiata pine include : prefabricated building components, DIY(Do-it yourself) end uses, truck flooring, container manufacturing, prefabricated housing (eg., for urban redevelopment and temporary military barrack use etc.) and wood-based panel for shipbuilding (eg., cabin compartment etc.).

Historically, high tariffs on sawn timber have kept Korea's sawn timber imports to a minimum. The tariff advantage of logs over lumber imports in Korea will further reduce if the sawn timber tariff drops according to schedule to 5% by 1993 (Table 3.17).

4.2.3 (b) Further Prospects

Overall, the prospects are good for expansion of the forest products market in Korea, for the following reasons :

- Korea's government is progressively dismantling the protection of its domestic forest products industry by lowering tariffs on a range of forest products.
- Korea has insufficient forest resources to supply its timber needs. As a result, it will remain dependent on timber imports for most of its future timber demand, either as unprocessed logs or finished products.
- As availability of hardwood logs declines, imported softwood logs are being substituted for hardwoods in production of sawn timber.

- Domestic demand for sawn timber and wood-based panels has increased significantly in recent years, largely as a result of increasing construction activity, and this demand is projected to continue growing.

Log demand has increased on average 7.6% per annum between 1986 and 1990.

- There are early signs that imports of some processed products, eg., plywood, are now increasing, because of rising domestic production costs (mainly labour cost etc.) in Korea and lower tariff rates on imported processed products.

- The shipbuilding industry is a large end user of panel products and there could be opportunities for New Zealand supplies. Currently, Korea is experiencing a shipbuilding boom, with backlogs in the order of nine million tons which keep shipbuilding yards at full capacity until the end of 1993. Quality of panels is a significant factor in purchasing decisions by the shipbuilding industry.

- The furniture industry is the largest end user of wood-based panel products. A rise in popularity of western-style furniture has helped increase the domestic furniture market. To penetrate this particularly competitive market, it would require significant promotion for New Zealand products. Quality of New Zealand products should be emphasised.

- New Zealand has to consider about providing company-by-company technical assistance and creating markets in Korea for semi-processed products.

- It needs to develop new application niches for Radiata pine. Recently in a large apartment complex which has 90,000 apartment housing units in Korea, Radiata pine purlins are starting to use for roof construction mainly for townhouse unit etc..

4.3 Foreign Investment Implications for New Zealand

The main pattern of forestry investment in New Zealand can be categorized as following three types :

i) Wood processing (either upgrades or new plant) both a) solid wood processing and b) residue processing

ii) Forest growing (purchases of existing forests), and

iii) Forest companies direct investment (either complete purchase or the purchase of a significant share holding).

Significant features of recent investment are: alterations, rebuilding or expansion of existing plants and joint venture or consortium type between New Zealand and foreign Co. The trends are as following figures in solid wood processing and wood residue processing investment (Table 4.10).

Table 4.10 Major Wood Processing Investment

Date	Amount (NZ $ million) invested in :					
	Existing plant		New Plant		Total	
	SW	WR	SW	WR	SW	WR
1988	0.0	0.0	11.0	0.0	11.0	0.0
1989	21.0	230.0	0.0	0.0	21.0	230.0
1990	0.0	50.0	20.0	8.0	20.0	58.0
1991	0.0	304.6	0.0	0.0	0.0	304.6
1992	13.0	0.0	42.0	0.0	55.0	0.0
1993	17.2	41.8	22.0	0.0	39.2	41.8
1994	50.0	95.0	40.0	0.0	90.0	95.0
1995	0.0	0.0	30.0	0.0	30.0	0.0
1996	0.0	0.0	0.0	0.0	0.0	0.0
1997	0.0	0.0	0.0	0.0	0.0	0.0
1998	0.0	0.0	100.0	0.0	100.0	0.0
Total	101.2	721.4	265.0	8.0	366.2	729.4

Note) SW : Solid Wood processing investment

WR : Wood Residue processing investment

Source : Ministry of Forestry, Statistical Release 1993

Currently, there is no Korean forestry investment in New Zealand. In 1976, however, a fourth pulp mill was constructed at Karioi, North Island. Winstone Samsung Industries, a joint venture involving Winstone Ltd. and a Korean firm, aimed at producing TMP (thermo-mechanical pulp) for the Korean partner and for sale on world markets. The basic products of the industry were mechanical and chemical pulp which is converted into newsprint, kraft & other paper and paperboard.

The project had an unstable start, stretching NZFS (New Zealand Forest Service) supplies from the Karioi forest, and faltered when the Chonju Paper Manufacturing Ltd. (ie., Samsung's affiliated Co.) failed to market 70% of the mill's supply of pulp products. A near collapse of the Winstone group, because of Karioi trading difficulties, was averted by a $ 15 million government rescue package. The joint venture was disestablished and taken over by an Indonesia and New Zealand joint venture, Perfect Match Investments Ltd.\ Winstone Pulp International Ltd. The aim of the joint venture is to acquire the remaining 5% of the share capital of Winstone which operates the Karioi mill and Waimarino Forest business in the central North Island investing $ 500,000.

Overseas examples exist of direct Korean foreign investment such as the Borneo International Furniture Co. which was established as a joint venture Co. in Indonesia to supply tropical hardwood for furniture manufacturing. Also, Hyundai Wood Industries Co. has recently signed a contract to develop forests in the maritime provinces of Siberia.

The region is reported to yield one million cubic metres of logs annually. There is some scepticism by the forest product industry that this contract will have much impact on log supply.

Considering the overcapacity of sawmilling and MDF industries in Korea, the most promising sector would be pulp and paper industries as a forestry investment to New Zealand from Korea. From a marketing viewpoint, the strategic alternatives for the pulp and paper industry are limited and defensive. There are opportunities to produce a differentiated product but the number of potential markets is automatically reduced.

Major buyers, especially Japanese Cos.(eg., Carter Oji joint venture etc.) are investing in joint ventures to assure supply and diversification of supply sources. In fact, such joint venture formation frequently means supplying 100% of output to one consumer or a few joint venture partner.

Because of the buyer's market, producers face a dilemma : to produce a standard product and be vulnerable to international price fluctuations, or produce a differentiated product for guaranteed sale to one or a few customers and so be on the weaker side of the negotiation. Consequently, the pulp and paper industry in New Zealand can be expected to follow the worldwide pattern of lower long-term profitability than achieved on average by manufacturing sectors.

Opportunities for joint ventures with major buyers, such the Carter Oji venture, may become more difficult to negotiate on acceptable terms in the long term because either the potential partners will already have invested in sufficient joint ventures in New Zealand or they will be even larger and more powerful. However, joint venture arrangements are likely to be the dominating feature of future developments in the New Zealand forestry industry.

It is difficult to foresee profitable exporting being achieved without formal coordination in at least some aspects of marketing. In a buyer's market, to capitalise on its inherent advantages, New Zealand will have to avoid competition between exporters, especially when there is only one buyer as is the case in Korea and other Asian countries.

Forestry is therefore, in many respects, similar to other New Zealand primary industries such as dairy products and meat, where productive capability for a good quality product does not necessarily provide a guaranteed market at economic prices.
In addition, many overseas buyers wish to remain several sources of supply in view of ensuring a stable market. It will therefore be difficult for New Zealand and in particular, individual companies to gain a majority share of export markets.

For example, competition from Scandinavian and North American producers supplying Asia will continue to be a significant factor, with marginally priced supply causing a difficulty for any New Zealand greenfield producer selling predominantly into this region.

Expansion in the pulp and paper industry is generally limited to projects involving:

--- Rebuilding or expansion of existing plants. Considerable potential is foreseen internationally for such projects as rebuilding or expansion (eg., brownfield) is generally seen as a lower cost expansion route than a new greenfield development.

--- Government support. There is plenty of evidence of direct and indirect government support and involvement in the industry in a number of countries. This applies in both developed and less developed countries both in established new industry and supporting and restructuring unprofitable existing industry.

In spite of the above difficulties, it is nevertheless recognised that the forestry processing industry (eg., pulp \ paper operation) can bring very significant national benefits in terms of net foreign exchange earnings, employment creation, relevant industry cluster & linkage effects etc. Any opportunity to successfully establish such a plant (eg., paper \ pulp operation) on a sound basis should therefore be examined and captured. Joint venture or other long-term contractual arrangements may in such cases provide suitable conditions for the establishment of a viable project. In this context, the next chapter will be taken up such a long-term contractual arrangements as a strategic vehicle of bilateral trade and investment in preparation for New Zealand forestry globalization.

CHAPTER FIVE

CONCEPTUAL FRAMEWORK FOR OVERSEAS BILATERAL FORESTRY INVESTMENT ARRANGEMENTS

5.1 Strategic Investment Options for Globalization of Forestry

5.1.1 Introduction

Chapter three(3) and four(4) reviewed the strategic factors on the demand and supply side for wood & wood products which affect New Zealand's forestry globalization. The findings of those chapters pointed also to opportunities in the Asia Pacific Basin for exports of New Zealand wood. However, to benefit from this, continuing investment in afforestation and processing in New Zealand will be needed. This again then raises the issue of FDI (Foreign direct investment) as one means for New Zealand forestry to keep its place in the globalizing wood market. To encourage FDI, appropriate investment vehicles need to be available.

In this chapter, the aim is to set up a conceptual framework for investment options in forestry globalization assuming that this occurs through bilateral interactions between resource-supplying and demanding countries.

Such a bilateral arrangement framework between resource-supplying and demanding countries is deemed necessary for the following reasons :

1. The principal issue for the New Zealand forest products industry is the form in which its timber resources are exported.

In order to increase export, it is essential to be tied up with overseas investors \ demanders such as by means of a joint venture arrangement or trust system, for example. Consequently, it is important to develop bilateral arrangements between resource-supplying and demanding countries as a strategic option in preparation for forestry globalization.

2. Once a forest is established, it is fixed in space, it becomes essentially immobile until the trees are harvested. Stumpage production requires far longer time periods (e.g. a 30 year time span for Radiata pine) than are usually encountered in other productive endeavours. Therefore, long-term arrangements tied up with demanding countries combining trade with investment can provide an effective vehicle to sustain long-term consistency of forestry management by ensuring overseas market and stability of overseas investor's forestry rights.

3. Continuous investment into New Zealand plantation forestry is intimately associated with world wood supply and with New Zealand's wood supply capability (ie. factors of production such as land, capital, labour and technology etc.). Particularly, land and capital availability hold the key to New Zealand's future national wood supply.

At present, however, land and capital availability in New Zealand is limited because of several factors. It is crucial to develop an institutional framework to overcome some of the difficulties in these constraining factors.

5.1.2 Forestry Investment Structure

The main types of investment structures for forestry projects, and their key features are:

(i) Individual ownership --- where an individual owns the land and has direct control over the physical and financial aspects of the project. The current taxation regime allows the individual to deduct most forestry development expenditure from any source of finance.

(ii) Forestry joint venture --- under the Forestry Rights Registration Act 1983, an investor can enter a joint venture agreement with a land owner to develop a forestry block. Joint ventures avoid expensive survey and subdivision costs and provide long-term project security by registering the agreement on the land title. The respective inputs of the land owner and the investor are identified in the agreement and normally provision is made for sharing income in proportion to each party's contribution. Each party is eligible for tax deductibility provided in the current taxation regime (Tax Act 1991) in accordance with their contribution towards development costs.

(iii) Partnership --- a partnership is limited to 25 participants. Partnership investors are provided with all investment, management and revenue details along with advice on the forest managers and partnership promoters. Security is provided through a legal contract and each partner qualifies for deductibility and depreciation provisions under the current taxation regime. Note that in this investment structure, the investors face unlimited liability in the venture.

(iv) Qualifying companies --- can be used as an investment vehicle for up to 5(five) investors and their immediate family members. A major advantage of a qualifying company over direct investment through a partnership is that shares in a qualifying company can be transferred without triggering tax liabilities on the underlying forest interest and that there is protection for shareholders in contrast to the liabilities arising against a partnership. Up to 25 (twenty-five) qualifying companies can form a partnership thereby increasing the maximum number of investors to 125 and retaining the limited liability and tax advantages as compared to a straight partnership [see 5.3.2(a) Scenario 1].

(v) Investment companies --- where there is no limitation on the number of participants in the investment project. The company structure provides a measure of limited liability and an ability to transfer investment interests during the growing cycle. The disadvantage of the company structure is that the company owns the forest, and there is no opportunity for shareholders to enjoy tax deductibility on company expenditure.

(vi) Rural property trust companies --- As a unit trust, the New Zealand Rural Property Trust (NZRPT) pools investors' funds for the express purpose of long term investment in prime rural land. The trust itself does not farm the land but offers a long term lease either to the farm vendor or to other suitably experienced farmers. By severing the ownership of land from the actual business of farming, farmers are better able to direct their capital into increasing profitability.

A farmer sells his farm to ' the TRUST ' and exchanges a freehold title for a long-term secure lease. He retains the farm business, owns the stock and plant and continues uninterrupted as before. He simply pays a rental for the land asset. The Trust presents an opportunity for farmers by freeing up capital to concentrate on their business --- to expand, diversify, relieve burdensome debt or to buy out partners. Its leases offer security of tenure, flexibility and access to capital to enable them to realise the full potential of their properties.

Table 5.1 presents a summary of current investment structures. The list is not exhaustive, in that there are other options currently in use (eg., Syndicate, Incorporated Societies, Cooperatives). The list, however, contains the most common structuring options based on taxation and other legislation.

Table 5.1 Forestry Investment Options for Individuals

Structure	Ownership of land	Ownership/funding of forest asset	Advantages	Disadvantages
1. (a) Landowner on own account	Landowner	Landowner	• easily understood. • tax benefit on afforestation expenditure • capital gain on land value.	• no tax deduction on land investment
(b) Investment in private company	Owned by company	Owned by company	• easily understood. • simple registration and raising of capital procedures. • capital gain to investors wishing to sell shares before maturity of trees. • limited liability protection to investors. • more attractive to offshore investors, than a partnership.	• no tax deduction to individual investors. • tax losses incurred by company will need to be carried forward to maturity of forest with no cash flow benefits. • double taxation on final harvest value, although planned imputation tax measures announced by Government in 1985 should avoid this.
(c) Investment in a partnership	Owned by partnership	Owned by partnership	• easily understood • tax benefit to individual investors for afforestation expenses.	• inconvenient to register land as all partners need to sign. • personal liability unless "special partnership" used. • sale of share in partnership creates tax liability to vendor partner.
(d) Investment in combined partnership/ company structure	Owned by company and leased to partnership	Funded by partnership and secured using a registered forest right	• a proven structure for forestry syndicates in N.Z. • tax benefit to individual investors for afforestation expenses available. • convenience of registration of land ownership. • rental received assumed to equate with company out-goings (e.g. interest on loans).	• more cumbersome. • extra legal costs for company, partnership and forest right. • sale of share in partnership creates tax liability to vendor partner.
2. (a) Landowner participation in joint venture.	Landowner	Funded by outside investors and secured using a registered forest right. Share of harvest to landowner	• no further outlay by landowner. • capital gain family ownership of land retained.	• no tax deduction to landowner. • management control of forest usually passes to others.
(b) Investment in private company for joint-venture forestry	Landowner	Company	• as for (1b) above. • lower capital outlay and therefore easier to find investors.	• as for (1b) above. • no land interest could deter some investors.
(c) Investment in partnership for joint-venture forestry	Landowner	Partnership	• tax benefit to individual investors for part of contribution (i.e. no land investment).	• as for (1c) above. • no land interest could deter some investors.
3. Purchase public forestry company shares	Company + leases and joint ventures	Company	• ease of purchase and sale of investment. • possible purchase of undervalued forest asset. • capital gain on sale of shares.	• no tax deductibility. • no direct identification with or access to forest.

Source: New Zealand Institute of Foresters(INC), 1986, Forestry Handbook

5.2 Relevant Legal Structure of Joint Venture Forestry

5.2.1 The Current Joint Venture Forestry in New Zealand

Expansion of both state and private forests since the early 1970s has been significant, but is increasingly hampered by inflated rural land values and a general liability (eg., loan etc.) to purchase land for forestry purposes. The move to plant land under leasing or deferred rental systems has resulted because of the above circumstances. The joint venture concept arose from this development, and presents a vehicle for forestry development programmes in which the grower is not the land owner.

A joint venture is cheaper to implement than a lease, and overcomes difficulties created by local government controls on subdivision. As a result, it is much better suited for use with small areas of land. The major merit of joint venture or trust system is that it enables development of best land use by integrating small land owners' properties.

Traditionally, joint ventures have been established on parts of farms which land owners decided were suitable for afforestation but which they were not prepared or able to sell. In short, joint venture forestry was contrived as a new way to release land from agriculture for forestry interests. The manner in which ' agricultural ' land is released is itself significant. Interest has grown in arrangements among the land owners who do not want to sell their land by retaining the existing land.

The development has concentrated on devising long-term arrangements which spread the risks and rewards between farmer land holders (who are unwilling to release land) and investors (often companies) who are seeking access to and control over the use of land.

The 1983 Forestry Rights Registration Act paved the way for joint venture arrangements. Although there are other legal ways of achieving the same end, the Act provides an effective method of registering on the title of the land, a right given by a land owner to an investor to grow and harvest trees. The right once given is independent of the land owner who may change from time to time. Figure 5.1 reveals the spectrum of arrangements which are presently available to organisations anticipating investment in forests.

Figure 5.1 Production and Distribution Options

Return to Landowner	Duration of Association	Landowners	OPTION	Finance Source	Market	Security of Wood Supply to User
100%	-	LIMITED NUMBER	FEL Scheme 963 - 970	SELF + FEL	FREE	N/A
20 - 40% DETERMINED AT HARVEST	30 YEARS	〃	Farm Forestry Assn Joint Venture Scheme	INVESTORS	NONE ASSURED	N/A
				UTILISATION CO	PART ASSURED	NEGOTIATION REQUIRED
NO LIMITS PRE-DETERMINED 50 - 53%	30 YEARS	4 FARMERS (3 IN HAWKES BAY 1 IN NELSON)	Tukituki Joint Venture Scheme	UTILISATION CO + FEG + LANDOWNER	ASSURED	SECURE
NO LIMITS PRE-DETERMINED 31 - 48%	16 - 35 YEARS	18 FARMERS (14 IN OTAGO 4 IN CANTERBURY)	Basic Joint Venture Scheme	UTILISATION CO + FEG	ASSURED	SECURE
				INVESTOR + FEG	NONE ASSURED	N/A
PRE-DETERMINED 15 - 35%	ONE / TWO ROTATIONS	〃	Modified Basic Joint Venture Scheme	UTILISATION CO WITHOUT FEG	ASSURED	SECURE
9 - 20% + RENT	70 - 99 YEARS	THE CROWN	Long Term Leases	THE CROWN	NONE ASSURED	N/A
		26 MAORI INCORPORATIONS		UTILISATION CO	ASSURED	SECURE
CASH		NUMEROUS FORMER FARMERS	Freehold Sale / Purchase	THE CROWN	NONE ASSURED	N/A
				LARGE UTILISATION CO	N/A	SECURE

INCREASING ADVANTAGE TO LANDOWNER

INCREASING ADVANTAGE TO INVESTOR

Source : Groome J.(1983) Joint venture forestry in farmland

5.2.1 (a) Deciding the Contribution

In a joint venture, both the land owner and the investor will contribute to the project and they must agree on the details of their respective inputs. The relative contributions to total inputs will determine the share of returns. The circumstances of the parties will influence the allocation of contributions between them. If the land owner has a strong cash flow, he may accept more responsibility for the project than the investor and vice versa. However, a typical allocation might be as follows :

Table 5.2 Contributions of the Joint Venture Forestry

Land owner	Investor
. planning consents	. additional road construction,
. land	maintenance
. existing roads & tracks	. land preparation & planting
. roading material, rock etc.	. any necessary buildings
. fencing	. forest management
. rates, levies &	. insurance
land tax	. weed, pest, fire & disease control
	. water & soil protection

Source: Guidelines for joint venture forestry, NZFC ,1985

The parties formally promise to provide their respective contributions with 'covenants' in the agreement. These promises are then legally binding. Each party will incur some form of sundry administration costs during the term of the project. These may be estimated and included as contributions.

5.2.1 (b) Advantages \ Disadvantages

The disadvantages of this option centre around a perception of the loss of security and the initial cost of change. The main advantages revolve around the benefits of freeing up capital which locked up in land ownership.

(i) Land owner

The advantages of woodlot forestry to the land owner include shelter, shade, water and soil protection, utilisation of unproductive land, diversification of income and estate planning. The specific advantages include the ability to :

--- expand the business by leasing without the need for further borrowing

--- retire debt and eliminate the associated borrowing costs

--- pay out family equity or business partners

(to unwind syndicates or partnerships)

--- provide capital for off-farm investment or retirement superannuation

--- settle landless farmers who have sufficient capital

for stock & plant

and to benefit from :

--- a direct benefit from tracks & roads created by the project

--- a guaranteed market outlets where the investor is a processor

The disadvantages are :

--- The dilution of control over the land, given that forestry personnel may cross it at any time: this implies possible loss of privacy, the need for additional security surround the homestead and farm building, and possible stock disturbance

--- possible damage to tracks in wet weather from forestry vehicles.

(ii) Investor

Woodlot forestry may give advantages to the investor for tax reasons, estate planning, diversification of income or investment, or to secure a resource. It,

--- avoids the capital cost of land purchase and land tax implications

--- utilises land that may not otherwise be available

--- the use of existing tracks, fences, fertility levels etc.

--- a strong public relations exercise in integrating farming with forestry in conjunction with existing land owners.

Woodlot forestry may have disadvantages in terms of investment and its uneven returns, because :

--- the absence of complete control over the forest

--- the need to consult regularly with the land owners

--- possible high harvesting costs due to small areas

--- the fragmentation of forest holdings for large investors

--- possibly more extensive record keeping

Some of these items may be intangible but important to the overall smooth operation of a project. The impact of these factors should be considered by the parties from the outset.

5.2.1 (c) Deciding the Shares

There are four types of possible combinations in joint venture :

Land owner + Investor (eg., processor) --- The method of estimated costs

Land owner + Investor (" ") --- The method of actual costs

Land owner + Investor (eg., non-processor) -- The method of estimated costs

Land owner + Investor (" ") --- The method of actual costs

Two basic methods of determining the land owner's and investor's shares of harvest value have been developed. They are :

- The method of estimated costs This provides a measure of each party's share of return before the joint venture agreement is signed, which allows each party to accept or reject the calculated share before making a commitment. Advantages of this approach are : simplicity, in that expensive record keeping is not required; Investor efficiency, as greater expenditure will not result in a higher share of revenue; and a simpler legal agreement, as the method of determining relative shares need not be included in the document.

The approach requires the obligations and contributions of each party to be comprehensively defined at the inception of the contract, as little opportunity exists for changing these during its term.

- The method of actual costs This enables each party's return to be calculated at the time of harvest, when the sum of all costs and contributions is known. An advantage of this method is flexibility in that the parties' contributions may be varied each year by agreement. However, it requires extensive record keeping and variations of the approach have been formulated.

5.2.1 (d) Laws Affecting Joint Venture Forestry

Property law tells us that when a person owns land, he also owns structures permanently fixed to that land and plants growing on it.[1] Hence, any party to a joint venture who is not a land owner needs to have his contractual rights recorded and secured if basic property law is not to prevent his sharing in the proceeds of sale of a timber crop. The fact that the entrepreneur is allowed to use the land in order to grow the trees incidentally. Therefore, the wood always, in law, belongs to the land owner until the trees are harvested.

[1] The property Law Act 1952 #2 Interpretation, 'Land' includes all estates and interests, whether freehold or chattel, in real property.

The Forestry Rights Registration Act 1983 was designed to ensure contractual compliance of undertakings given by A and B if either sold land or a forestry right to a third person. It assumes registration of a formal instrument under ' The Land Transfer Act 1952 ' giving a non-land owner the right to plant trees on another's land and to remove them within a defined period. It also assumes that promises will be formally recorded in such instruments as covenants. Those covenants may be given by the owner to the investor or by the investor to the owner, or may be mutual covenants recording joint obligations.

The Forestry Rights Registration Act builds on a body of law which recognized limited rights of access over land owned by another person for the purpose of removing substances from that land --- ' The Profit a Prendre ' [2] . That is, it assumes the separation of land ownership and timber cutting right. In effect, it enables the profit to operate as if it were an ' easement ' [3] such as a right of way.

[2] A right to enter on to the land of another in order to take something from the soil that is capable of ownership, such as minerals, timber, crops, pasture, turf, game, gravel or even the soil itself

[3] Easement does not permit the taking of anything from land, but must benefit another interest in land such as a right-of-way over another's property.

The Act states that a forestry covenant shall bind the executors of a deceased covenantor and any buyer of land covered by a forestry right, or buyer of forestry rights themselves in order to ensure long-term consistency in forestry management. The Act leaves the parties to make their bargain. What they decide is a combination of various factors, such as :

. Capacity of the land to return a profit after forest costs have been met
(eg., fertility, terrain, accessibility and another such items may be limiting factors that reduce the prospect of a good return)
. Size of area available in terms of economies of scale
. Number of rotations envisaged, and whether a sustained yield is planned
. Effect of reduced remainder on expected returns from farming

Primarily, it is similar to the ' mining lease ' [4] : the basic transaction is the sale, to the entrepreneur, of trees belonging to the land owner. That means the entrepreneur is allowed to use the land in order to grow the trees incidentally. Legally, it means to the land owner that part of his land is withdrawn from farming, not merely for the period of forest produce removal (as happens where mineral is taken from the land owner's property by the entrepreneur), but also for the period during which the forest produce is grown. The entrepreneur has to cover his own total expenditure, plus a reimbursement to the land owner for lost production, before he can begin to think of a likely price to offer the land owner for the wood.

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[4] A contract by which a land owner grants or permits another a right to work a mine and extract minerals there from. In general a ' mining lease ' may be no more than a licence, a profit a prendre, or an easement for access combined with the right to remove material under the soil.

5.2.2 Problem Definition & Recommendation

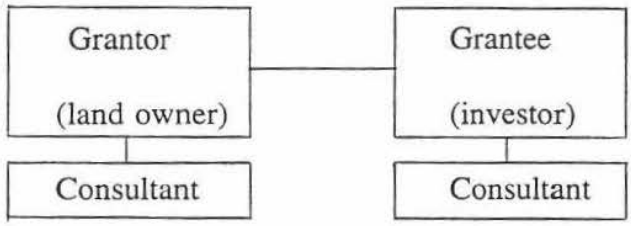
5.2.2 (a) The Problem

The discussion in the previous chapters made clear that foreign investment represents one of the strategic options for New Zealand forestry to prepare itself for the globalization of forestry. To that end, it is essential that investment vehicles or structures are found, other than the current joint venture agreement, that will attract overseas investment. To do this, less emphasis needs to be given to the priority of the domestic agricultural land owners as currently exists in the joint venture scheme.

The current New Zealand joint venture forestry system lacks an incentive to attract overseas investors as it gives too much priority to the domestic land owners (ie., farmers). This bias stems from the agricultural primacy of the historical progression of land settlement in New Zealand which produced a ' mono-cultural pastoral farming ' (Dart.J 1980). The conflict revolving around the land use between agriculture and forestry will be aggravated as long as the social attitudes to the agricultural primacy prevails. It is one of the reasons which hinders overseas investment in forestry. Investment in forestry is long-term and is faced with significant uncertainty. To overcome these disadvantages, any scheme put into place to attract foreign investment needs to provide the appropriate incentives and ensure the stability of the forestry right.

Under the current joint venture system, there still remains a direct negotiation relationships between land owner and investor which may cause conflicts due to each party's different interest. There are some economic conflicts involved in this system. The investor (ie., Grantee) is interested in securing the highest return at the lowest investment amount. The land owner (ie., Grantor) wants to the highest possible return from the offering of his land. Therefore, there is need here for an intermediary to reconcile these interests.

Figure 5.2 Land owner & Investor Relationship in Current J\V System



In the current joint venture forestry, the status and role of consultant are as follows:

A forestry consultant may assist in drawing up the joint venture and preparing the management plan. Further, if the Grantee (i.e., investor) is not experienced in forestry, the parties may wish to appoint a forestry consultant to manage the woodlot or provide advice. Even if the Grantee is a forestry company, provisions can be made for a consultant to monitor the work done and prepare independent reports and valuations. The parties must agree on the need for a consultant, the terms and conditions of the appointment, and the duties.

However, to ensure efficient management responsibility for hiring, firing and paying, the consultant should be clearly assigned to only one party (That means, however, that the consultant can be fired at any time by one party, and this might jeopardize long-term consistency of forestry management due to the consultant's unstable status). The consultant should be fully briefed on his\her delegated authority and management obligations.

The consultant's performance should be reviewed at regular intervals.

" To appoint a forestry consultant on terms to be agreed or failing agreement on terms to be settled by arbitration with the following duties (for example) :

(i) to implement the management plan in accordance with good forestry practice and in the best interests of both parties

(ii) to recommend changes to the management plan if necessary

(iii) to provide independent advice on the management of the woodlot and recommend changes to management practices and the management plan as necessary

(iv) to provide an independent valuation of the woodlot prior to harvest...etc."

(Source: Guideline for participants in joint venture forestry, New Zealand forestry council, 1985, p.30).

Under the current joint venture system, the land owner's rights are too much emphasized and protected. Major relevant examples for land owner primacy are as follows :

* Grazing : Grazing is a land owner's right which may be waived, not a Grantee's right to be given to the land owner. Grazing should be allowed except when it might damage the trees or interfere with forestry operations (e.g., tending or harvesting).

* Access : Access to the woodlot area is granted by the land owner as a basic right prior to the covenants. The Grantor may wish to qualify this right by giving ' limited access ' ; which is a general right of access with specific exclusions; or ' defined access ', with clear limitations on the Grantee's movements.

* Adverse rights not to be given : If the agreement is registered all subsequent agreements or rights given by the land owner will rank after it, and adverse rights cannot be legally given. Any damage caused by giving adverse rights should be covered by the indemnity clause anyway.

* Ownership of trees : The land owner owns all trees on his land, by law. He may grant the right to tend and harvest them, and once they are harvested, ownership of trees will pass to the Grantee.

As can be seen from the above statutory information, the consultant's role is too weak and subordinate to execute the project efficiently while the Grantor's right is too much protected. The direct negotiation between land owner and investor needs to be separated in order to perform the project more efficiently. The Consulting Co.'s (ie., Trust Co.) role in the project must be strengthened by taking the initiative to provide advice, finance, information and management planning.

Under the current joint venture forestry, the normal ' profit a prendre ' is a right merely to remove, not a right to create an asset (' Prendre ' means to ' take away ' in French). It is likely to contradict with the basic concept of ' highest & best use ' of the property because it simply removes and does not create an asset value. It is necessary to create added-value of an asset through ' highest & best use ' of property by involving a more innovative developer (eg., consultant)'s role.

As a solution to the above problem, the Forestry Rights Registration Act 1983 expanded the concept of a ' profit a prendre ', so that, for forestry purposes :

--- The entrepreneur can be granted the right to develop a forest (as though a leasehold is held over the land);

--- The land owner can, as far as practicable, retain full access to and use of the forest land (as though a mere licence or easement over it had been granted);

--- The entrepreneur can cut down and remove trees (as though a simple ' profit a prendre ' had been granted);

--- The parties can write their own bargain regarding sharing of profits, location of trees, and so on.

Even though the above improvement, it is still not enough because it is hard to attract overseas investors unless the investment structure provides more incentives and ensures greater stability for the forestry right enough to offset the loss from the long-term investment.

It needs to be converted to a more favourable structure for forestry investment from the current joint venture system which gives too much priority to land owner.

The crucial issue is whether the joint venture ' profit a prendre ' arrangement will be adopted by farmers, hopeful of substantial returns from trees, or simply be passed over in most areas. Because large forestry companies already own or have sufficient rights to timber to fill their expected demands, joint venture arrangement will be adopted widely only when the interest of the forestry companies or other large corporate investors remains strong. Without involvement of forestry company, investors and land owners alike would be left with no assurance of a market.

In summary, problems which revolving around the current joint venture forestry are as follows :

- There is no intermediary function to reconcile conflict (not only economic but also non-economic) between grantor (ie., land owner) and grantee (ie., investor) due to direct negotiation.
- Individual land owners are sometimes too small-scale to perform the joint venture forestry efficiently due to lack of financial capability and management skill.
- It may harm the balance of legal stability between grantor and grantee by emphasizing and giving too much primacy on land owner's right.
- The consultant's role is too unstable and subordinate. More active developer's roles (eg., planning, control and coordinating) need to be strengthened.

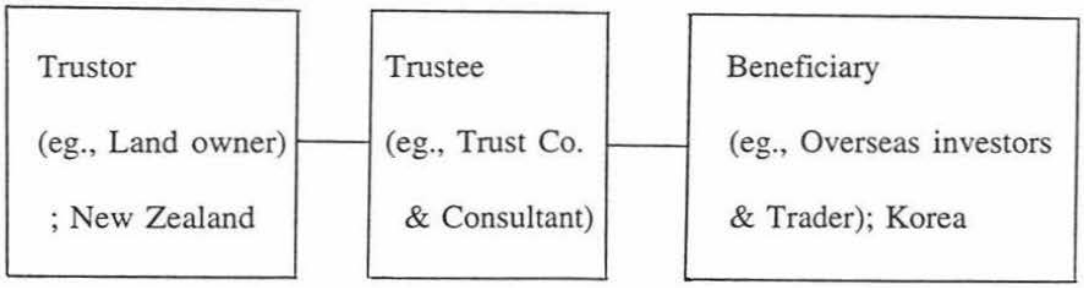
- It is difficult to achieve economies of scale at developer's discretion as long as the land ownership belongs to land owner. Land ownership is desirable to be transferred temporarily (e.g., project period) to the developer's hands.
- There is no guarantee (eg., statutory regulation) to protect the overseas investor's forestry right. Also, there is no consideration of the legal situation for the demanding countries in current joint venture scheme.

It is, therefore proposed to devise a ' mechanism ' which mediates between land owners and investors (or demanders) by involving innovative developer (e.g., Trust Co. etc.) in order to ensure long-term , stable marketing outlets.

5.2.2 (b) Proposed New System

In the new system proposed, the current consultant's position and role is upgraded and reinforced to a more innovative developer and mediator's role from the present mere one-off consulting job such as in joint venture system. More incentives are built-in to attract overseas investors. Land ownership is temporarily restricted to give more discretion in carrying out the project for the developers (ie., Trustee). The basic outline of the system is presented in Figure 5.3.

Figure 5.3 Land Owner & Overseas Investors Relationship in the Modified J\V - Trust Forestry System



The above basic investment structure, consisting of an international forestry land trust system, is proposed as an efficient investment vehicle to facilitate land production factor mobility between wood-resource supplying (eg., New Zealand) and demanding countries (eg., Korea).

The major merit of the system is that it does away with the need for direct contact between the Trustor (ie., land owner) and the Beneficiary (ie., the overseas investor). The negotiation is achieved by an intermediate party --- the Trust Co. (ie., Trustee) by reconciling their conflicting demand.

Similar to the joint venture, the trust system can also benefit the investor by ensuring that his available finance is directed towards the cost of afforestation and not the purchase of the land.

To attract overseas investors into long-term forestry projects, it is essential to have a stable legal structure which clearly spells out and guarantees the investor's rights. The modified joint venture \ trust system achieves this requirement efficiently by separating direct links between land owners and investors and by having a lease agreement facilitated by a third party, the Trust Co.

The usefulness and efficiency of this structure would increase especially when the Trust Co. controls and manages on behalf of a number of individual overseas investors who are usually inexperienced in forestry management and local circumstances. Moreover, land trust system can provide an effective vehicle to expand the project and achieve economies of scale by integrating small-scale parcels of land.

Consequently, the ' modified joint venture \ trust forestry for overseas investment & trade system ' can provide an effective vehicle as one of the global strategies in forestry under current New Zealand circumstances. In the next section, this new system is explained in greater detail.

5.3 Framework of the Joint Venture \ Trust Forestry for Overseas Investment & Trade

5.3.1 Introduction

Investors considering investment in a forestry venture need to be aware of several features which distinguish forestry investment from many other investment options.

(i) The Long-term Nature

The main hurdle of most forest growing investment opportunities is the long-term nature. Normally, investors prefer short-term investment to long-term, but this is not always so. Some investors might be willing to invest into long-term returns to prepare for their future through means of superannuation or retirement funds. Such investors may invest into forestry instead of superannuation if they recognise that forestry investment is more profitable in the long-run.

To invest into long-term forestry, it is necessary that money should be sourced from surplus funds which are not required for urgent use. Radiata pine in most situations in New Zealand will require a rotation of 25-30 years before it will produce volumes of better grade logs. In most forest growing investment ventures, any income prior to forest maturity will be minor. Exiting from forest growing investment ventures prior to forest maturity will usually involve, at best, discounting of the potential returns to the investor. Consequently, investing in a forestry venture should be regarded as long-term investment.

(ii) Cash Flow Profile of Forest Growing Investment Ventures

During the establishment and tending phases of a forest growing venture, usually the first eight to ten (8-10) years, there are considerable cash demands for silvicultural operations. An investors needs to ensure that the cash flow demands of a project can be accommodated in their financial planning. Failure to meet the costs of thinning and pruning, for example, may severely affect the profitability of the venture.

(iii) Market Uncertainty

With the decrease in the supply of traditional sources of timber (eg., tropical hardwood), most projections seem to give an optimistic view of market opportunities for Radiata pine. However, investors should not regard future markets as being free of uncertainty. For example, substitution by other products and increased afforestation in other areas may reduce the net demand for forest products over time. In short, investors should keep in mind the following three special features of a forestry investment : 1) long-term nature 2) cash flow profile and 3) market uncertainty.

In this connection, four components of ' the modified joint venture-trust system ' should help in overcoming the mentioned impediments to forestry investment:

1. The normal forest system (ie., perpetual yearly wood flow) and agroforestry are proposed to solve the long-term problem ;

2. For the cash flow profile, it is assumed that money comes from overseas investment by means of ' Timber bond ' ;

3. ' Investment with contingent trade system ' (ie., repayment in kind such as timber) was proposed to solve market uncertainty [see Appendix ii)].

5.3.2 Illustration of Basic Investment Structure

The current joint venture forestry was reviewed in Section 5.2. It identified that there are some restrictions and impediments to attract overseas investment under the current joint venture system. It is a more favourable system for domestic investors because it only focuses on the New Zealand situation without reflecting the legal aspect of the demanding country investors (eg., Korea or Japan etc.).

The legal structure of the demanding country should be reflected in the current joint venture system to make a more favourable structure for overseas investment. The original contribution of this modified framework is that it is designed to link not only with the supplying country's (eg., New Zealand) legal structure but also the demanding country's (eg., Korea, Japan) as well. There is no basic problem to link legal structure because similar statutory regulations have already been established in demanding countries. Accordingly, the modified joint venture\ trust framework for overseas investment & trade can provide an effective vehicle to complement the weakness of current joint venture system.

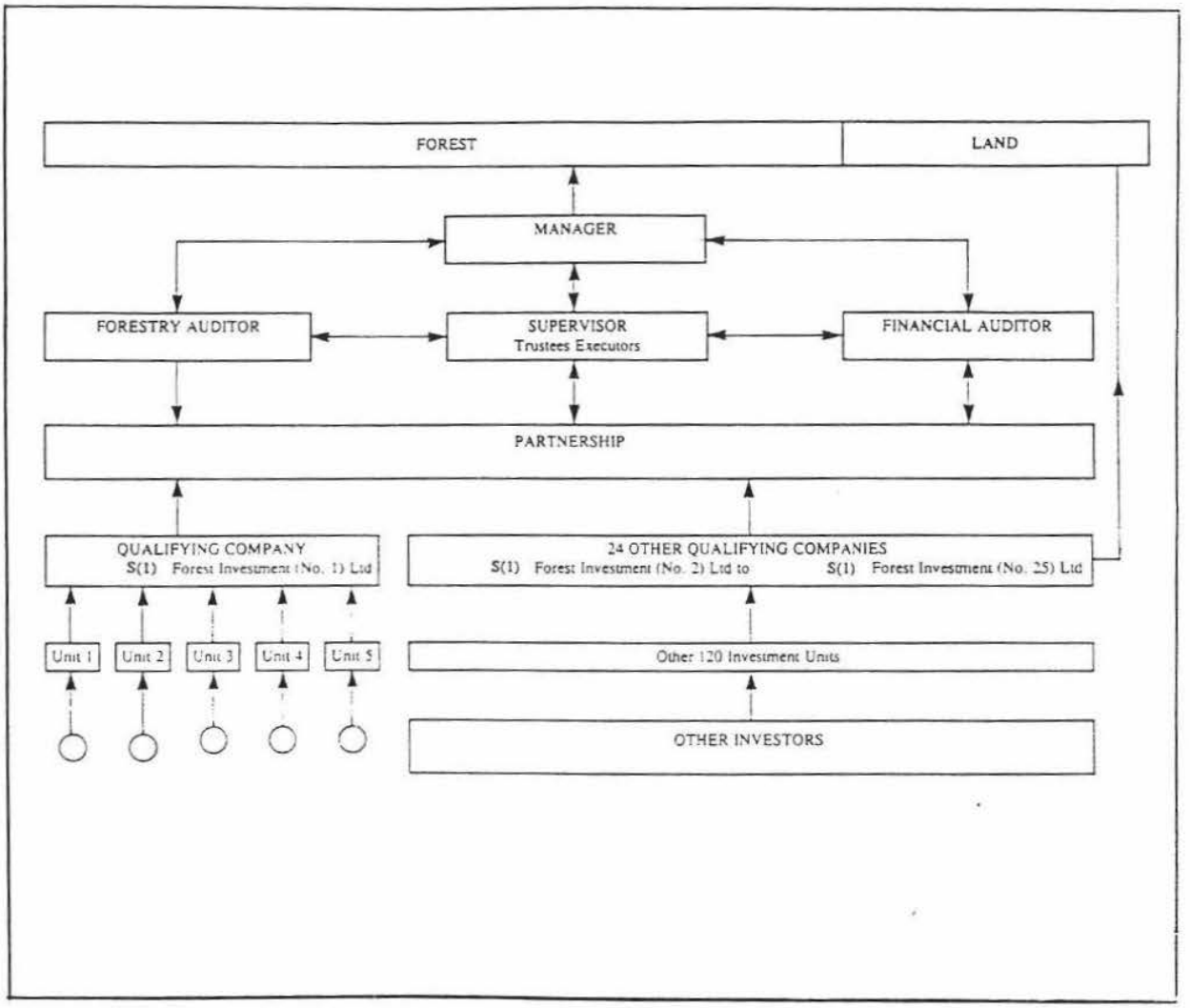
To illustrate the workings of the proposed system, two scenarios are presented, analyzed and contrasted. Scenario (1) is a land purchase scenario involving a forestry partnership. Scenario (2) is a land leasehold-trust situation using the proposed modified system. In what follows the two scenarios will be described after which they will be analyzed empirically. The structure of scenario (1) is presented in Figure 5.4.

5.3.2 (a) Scenario (1)

Figure 5.4 Scenario (1) :(Case of Land Purchase)

Investment Structure of Forestry Partnership

with Qualifying Company



Source : Prospectus (1993), Forest Enterprise Ltd.

The structure of the Scenario(1) combines the advantages of a forestry partnership with the advantages of a private company. The S(1) forest investment structure is the logical development of the forestry partnership utilising the recently introduced Qualifying Company taxation regime. A Qualifying Company is a private company which, for taxation purposes, is treated similarly to a partnership, subject to satisfying certain criteria. The similarity to a partnership extends to the treatment of tax losses which pass through the company to the individual shareholder Investors.

The S(1) forest investment structure is a partnership of 25 qualifying companies. Investors take shares in one of the 25 companies, each of which in turn becomes an investor in the partnership. The partnership undertakes the forestry project and the tax losses arising in the partnership pass back through the qualifying company to the investor. The partnership is called S(1) Forest partnership. The 25 company partners are called S(1) Forest Investment (No.1) Ltd. to S(1) Forest Investment (No.25) Ltd.

The Qualifying Company taxation regime allows a maximum of 5 shareholders. In the diagram of the structure above, S(1) Forest Investment (No.1) Ltd. is represented by 5 Investment Units rather than shareholders. This is because the definition of a shareholder in the qualifying company regime differs from the standard company definition.

Investors' contributions towards the on-going costs of the project will be made by way of calls upon the amount of the development share premium associated with each investment unit.

The structure is simplified by the use of the Trustees Executors as Trustee. Each investor authorises the Trustee by Power of Attorney, to attend to the procedural and statutory requirements of the operation of the companies. Further details on the role and responsibilities of the participants in the investment structure are set out follows :

Investors

--- purchase investment units in one of the 25 companies (one investment unit comprises 200 shares)

--- provide the funding required by way of calls on the unpaid share development premium

--- exercise control over the project through participation in all key decisions relating to the investment

--- receive dividends at the culmination of the investment from the harvest proceeds passing through from the partnership

Companies

--- purchase the land

--- invest in the partnership

--- meet the requirements to become qualifying companies

--- pass through the investors the tax losses arising from the operation of the partnership in the early years

--- pay investors dividends at the culmination of the investment from the company's share of the harvest proceeds

Partnership

--- undertakes the forestry project on behalf of the 25 companies

Trustee

--- acts as supervisor of the partnership

--- receives and holds all investors's funds until required for authorised expenditure

--- acts as attorney for the investors in order to attend to the procedural and statutory requirements of the companies and partnership

Manager

--- manages the project on behalf of the investors

--- co-ordinates the afforestation program

--- undertakes the projects accounting and secretarial functions

Financial Auditor

--- audits and reports on the projects accounts

Forestry Auditor

--- audits and reports on the afforestation field work

On the other hand, the structure of scenario No. 2 S(2) is presented in Figure 5.5.

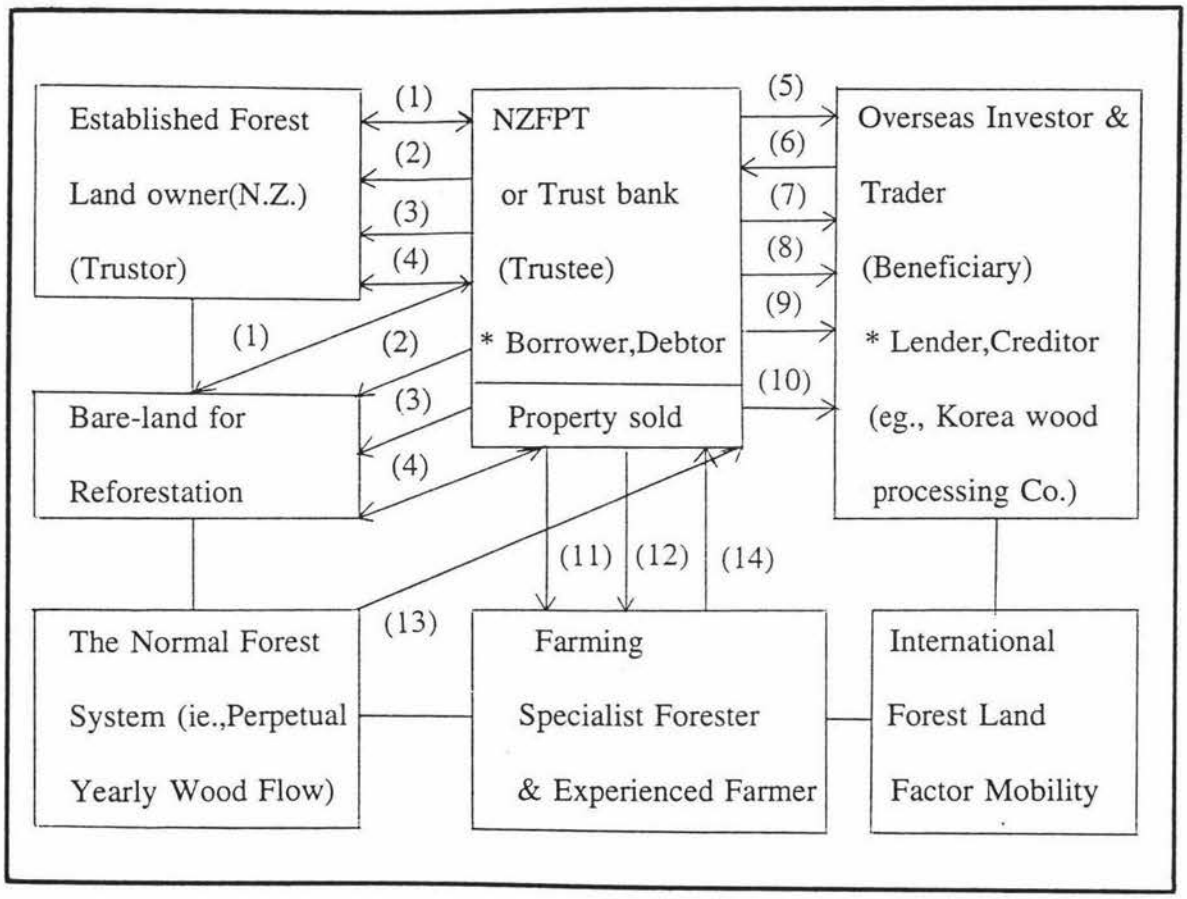
5.3.2 (b) Scenario (2)

Figure 5.5 Scenario (2): (Case of Land Leasehold or Purchase)

Modified Framework for Overseas Forestry

Investment & Trade

(International Forestry Land Production Factor Mobility Model)



* Note: (1) long-term leasehold\purchase (2) leasehold rate (3) Investment Unit (4) title reconveyed\sold (5) lease\sub-lease(proforma) (6) money invested (7) timber bond (8) invested money repaid by forest product (9) Investment Unit (10) failure to pay-invested money repaid from proceeds of sale (11) the forester\farmer selection (12) farming fee (13) yearly timber harvest revenue (14) short-term livestock revenue

The prototype of modified framework illustrated above can be explained as follows :

1) NZFPT (e.g., New Zealand Forest Property Trust Co. ie., Trustee) enters into a long term leasehold contract or purchase agreement for 30 years with land owner for 30 (Thirty) already established uneven-aged forest blocks to perform the normal forest system (ie., perpetual yearly wood flow). Radiata pine is assumed to be planted and its rotation is 30 years.

2) NZFPT enters into long-term leasehold contract or purchase agreement with bare-land owner for reforestation to perform the normal forest system.

3) NZFPT pays leasehold rates to both of them (eg., already-established normal forest blocks owner and bare-land owner). In case of land purchase, NZFPT does not need to pay the leasehold rates.

4) This long-term leasehold contract has legally binding force such as provisional transfer of ownership during the project period.

5) NZFPT selects specialist foresters & experienced farmers and entrust them with farming for agroforestry (ie., livestock grazing & afforestation) and pays them a farming fee as remuneration.

6) NZFPT (ie., Trustee) borrows fund for the afforestation project from overseas investor and traders and issues timber amortisation bond in exchange for the borrowing. Overseas investor's borrowing can be paid in terms of forest product (ie, repayment in kind) instead of cash in exchange for the note ' Timber bond '.

7) Under ' the investment with contingent trade system ' , NZFPT can repay the borrowing (loan) from the overseas investor (eg., Korea) by supplying timber which are harvested yearly from the normal forest blocks and it brings about equivalent effect as timber export from New Zealand side (see Appendix , Basic components for Scenario 2;(d) for more detail).

8) The overseas investor receives payment not only from yearly harvested forest products but also short-term livestock revenue from agroforestry.

9) Each participant (eg., land owner and overseas investor) receives investment unit by NZFPT as a dividend on pro-rata basis.

10) After termination of the project, the title of land for the already established forest and bare-land will be reconveyed to the former land owner at a status quo or recontracted by mutual negotiation. In case of land purchase, NZFPT has a right to dispose of the property and can distribute capital gain to the overseas investors.

There are four participants in the above scenario :

1) Land owner (Trustor) 2) Trust Co.(Trustee) 3) Overseas investor (Beneficiary) and 4) The Forester \ Farmer specialist

Their advantages \ disadvantages and roles are as follows :

1) Land owner (Trustor)

* Advantages :

--- The opportunity to obtain highest & best use of property by transferring his land to NZFPT.

NZFPT can manage with greater management skill and expertise than the small-scale land owner (ie., farmer) by entrusting farming to expert farmers and specialist foresters. The upgrading of management efficiency is a main source of profit created.

--- Land will be reconveyed as status quo after termination of the project in case of land leasehold-trust. In addition, the land owner could get more net income than previously obtained from farming by receiving investment units from the agroforestry plus rental during the trusted period. If the land owner wants to continue farming, it is possible to join the farming group as a member under the special agreement with Trust Co.

* Disadvantages :

--- The encumbrances on the property may hinder the farmer in exercising ownership during the project period (eg., 30 years) as it transferred temporarily to the Trust Co.(Trustee) to be offered to forestry.

2) NZFPT (New Zealand Forest Property Trust Co. ie., Trustee)

* Advantages :

--- NZFPT does not need to purchase land but can lease forest property on a long-term leasehold (ie., 30 years) basis. It could facilitate afforestation project by reducing the initial financial burden of purchasing land in case of leasehold. However, in case of land purchase, NZFPT needs to finance a large amount of capital to purchase land.

--- NZFPT can play a role as land developer by co-ordinating the project between land owner and overseas investor as well as mediator and consultant. Also, NZFPT distribute revenue from the agroforestry project to each participant on the basis of their share.

--- After termination of the project, NZFPT reconveys the property to the former land owner and winds up all financial arrangement in case of leasehold-trust. NZFPT raises funds for afforestation projects from the prepaid invested money from the overseas investor by issuing ' timber bond ' for the note and amortise the bond in exchange for timber and pays investment units from the proceeds of livestock sale from agroforestry.

* Trust Co.'s Consulting Role and Contribution

Trust Co. may take initiative in drawing up the contractual guidelines and in preparing the forestry management plan. Further, if the overseas investor is not experienced in forestry, the parties may wish to appoint a forestry consultant who belongs to Trust Co. to manage the woodlot or provide advice. Even if the overseas investor is a forestry company, provisions can be made for a consultant to monitor the work done and prepare independent reports and valuations. The parties must agree on the need for a consultancy, and the terms and conditions of appointment, and duties. To ensure efficient management responsibility for hiring, firing and paying, the consultant should be clearly assigned to Trust Co. The consultant should be fully briefed on his delegated authority and management obligations. His performance should be reviewed at regular intervals.

3) Overseas Investor (Beneficiary) :

* Advantages :

--- If the overseas investor would prefer to be paid in ' timber ' rather than money (eg., if he is a wood user or processor), then the overseas investor & trader can receive a long term stable supply of raw material from NZFPT in exchange for his prepaid investment (eg., mortgage loan).

--- Overseas investors can be supplied not only with timber, which is harvested yearly from the normal forest blocks, but also receive short-term livestock revenue from agroforestry as investment unit.

--- In case of the NZFPT being unable to repay the borrowed money (ie., prepaid invested fund), NZFPT could dispose of the property under special agreement with the land owner and repay the overseas investor from the proceeds of sale. In that case, the overseas investor has ' preemptive right ' [5] such as ' lien ' [6] for that property.

--- Overseas investors can transfer their right (ie., timber bond) to a third party during the project period unless it jeopardises long-term stability of the forestry project. However, it should be assigned to only qualified successors to ensure long-term consistency of forestry project.

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[5] Right of pre-emption means the right to acquire a property before it is offered to others. A right of pre-emption reserved by a vendor who sells land that is intended for development, but which is not developed within a specified period of time, may be called also a vendor's ' right of buy-back '.

[6] Lien means a form of encumbrance that usually makes property security for the payment of a debt or discharge of an obligation. Examples are for judgements, taxes, mortgages, and deed of trust.

--- Overseas investors do not need to pay leasehold rate to the Trust Co. because they are simply proforma leaseholders. Instead, the Trust Co.(ie., Trustee) pays leasehold rate to the Trustor (ie., land owner) on behalf of overseas investors.

--- Overseas investors could be exempted from farming because ' the forester \ farmer specialist ' would take over farming on behalf of overseas investor.

4) The Specialist Forester \ Farmer (farming)

Experience shows that the actual business of farming is most efficient when placed in the hands of the land owner \ farmer. The Trust Co. as such is not a farmer, and does not farm. It is desirable that the business of farming is to be operated by the farmer for personal profit. The specialist forester \ farmer takes charge of overall farming (eg., growing, tending, pruning, thinning, harvesting, fire prevention etc.) and could get consulting from the Trust Co.(ie., consultant) on the farm management from time to time.

5.4 Empirical Analysis of Scenario (1) and (2)

5.4.1 Introduction

In order to examine empirically the advantages of the modified joint venture-trust system [to be called Scenario 2 or S(2)] presented in the previous section, a numerical example is presented of S(1) and S(2). The first scenario S(1) is a land purchase case while S(2) is a land leasehold scenario (The complete cashflows for both scenarios are presented in Appendix Table A.1).

As discussed in section 5.3, S(2) consists of four important parts which are :

--- the normal forest system (perpetual yearly wood flow) ;

--- agroforestry (grazing);

--- timber amortisation bonds;

--- investment with contingent trade system

[see Appendix, Basic components for S (2)].

In the analysis that follows, ' the normal forest system ' is excluded from the analysis because of the unavailability of data. To be able to analyze the ' normal forest system (perpetual yearly wood flow) ', it would require empirical data on thirty (30) uneven-aged established forest blocks. This data was not available and given the time available for this research, it was not possible to obtain it. For that reason, only the remaining three components are included in the analysis of S(2).

The case study, as presented, consists of 410 hectares of land (ie., 180 hectares obtained in 1994 and 230 hectares in 1995).

The main differences between Scenario (1) and Scenario (2) are as follows :

1. While S(1) assumes the purchase of land, S(2) involves the leasing of land for 30 years and the payment of annual leasehold rates payments.

2. Grazing revenues are assumed to accrue from the initial year (1994) in S(1) while in S(2), the same grazing revenues begin to appear from the year 1997 (i.e., 4th year). In S(2), it is assumed that grazing commence from the 4th year in order to protect young trees from livestock.

3. In order to reduce initial funding pressure (eg., cashflow liquidity problems), a $ 200,000 mortgage loan is assumed to be available, the principal of which will be repaid in two lump sums, $ 100,000 (1996) and $ 100,000 (1997). Total interest payment for the 4 years is $ 57,000. For S(2), it is assumed that the same amount of funds will be borrowed from overseas investors in exchange for ' timber amortisation bonds ' which will be paid-out in two lump sums $ 100,000 (2022) and $ 100,000(2023) with its interest $ 25,024 and $ 31,976 (total $ 57,000) proportionate to harvesting revenues (eg., $57,000 x 12,040,200 \ 27,424,900 = $ 25,024).

Under the ' Investment with contingent trade system ', it is assumed that payment will be made in kind (eg., timber) instead of cash.

5.4.2. Land Price Analysis

It is the usual practice in land valuation, when doing cash flow analysis of forestry investment, to have the land purchased and sold at the same price.

That is, all the values in the cashflow in the Appendix Table A.1 represent current market values which are discounted to obtain their present value.

We cannot anticipate what values will be in the future as many factors (most of which are unpredictable at the present time) influence values. Therefore, changes due to inflation etc. over the next 30-years are not reflected in these values. This puts all the emphasis on the long-term forestry aspect and allows people to judge the forestry performance at its own risk.

On the basis of a property valuer's opinion, the present leasehold rate per hectare in this locality would be around $ 60 hectare per annum. In order to examine how profitability changes as the leasehold rate fluctuates, three cases are compared between S(1) and S(2):

i) Case (1) ; leasehold rate decrease (ie., 50 % of current price)

(ex) 410 ha. x $ 30 = $ 12,300 \ year

ii) Case (2) ; leasehold rate constant (ie., current price)

(ex) 410 ha. x $ 60 = $ 24,600 \ year

iii) Case (3) ; leasehold rate increase (ie., 200 % of current price)

(ex) 410 ha. x $ 120 = $ 49,200 \ year

The leasehold rate is fixed at current market price and is therefore constant throughout the project period. Hence, the I.R.R (Internal rate of return) calculated shows a real return on money invested.

Table 5.3 shows the IRR for S(1) and S(2) given a range of values for log prices and given three (3) leasehold rate levels for S(2). The results shows that under the base leasehold rate of $60\ha, there is hardly any difference between S(1) and S(2).

But in Case(3), the higher the leasehold rates increase (eg., from \$60 to \$120), the more the I.R.R of S(2) decrease relative to S(1) (eg., cashflow S1 IRR=0.106, S2 IRR=0.097).

In contrast, the lower the leasehold rates decrease in Case(1) (eg., from \$60 to \$30), the more IRR of S(2) increase than S(1), and vice versa (eg., cashflow S1 IRR=0.106 S2 IRR=0.110).

S(2) has the advantage of not having the initial funding pressure of land purchase, but if the land price increases to a great extent, S(2) would miss out on the capital gains at the time the land was sold. This would make S(1) more profitable than S(2), and would mean that S(2) would be less attractive as an investment vehicle than S(1). To overcome this, S(2) could be modified as will be explained in the section 5.4.3 (iv).

In Table 5.3, the sensitivity of the IRR (for an investor for each investment unit) with respect to land purchase, leasehold price and log price was tested and the results presented in Table 5.3. Log prices were varied over a range of $\pm$ 50 %. In S(1), the IRR represents compounded interest rate for 28 years which equates \$ 13,217 (see Table A.1 in Appendix No.40) after-tax cash-outflow to \$ 222,519 (ie., \$ 96,224+ \$ 126,295 in Table A.1 of Appendix No.37) before-tax cash-inflow per one investment unit.

The analysis shows how robust this investment is to fluctuations in future log prices and land purchase and leasehold prices. Even in the worst case scenario, a -50% fluctuation on the already conservative log prices used, an investor is projected to still receive a return of \$ 111,260 in S(1) based on undiscounted net present value.

Table 5.3 Sensitivities of IRR with respect to Land Purchase, Leasehold Price and Log Price Change (per Investment Unit)

Log price	Land purchase Scenario 1		leasehold rate change Scenario 2					
			CASE 1		CASE 2		CASE 3	
			decrease $30\ha		constant $60\ha		increase $120\ha	
Change	return	IRR	return	IRR	return	IRR	return	IRR
-50%	$ 111,260	0.079	$ 108,493	0.083	108,395	0.078	108,198	0.070
-40%	$ 133,511	0.086	$ 130,192	0.090	130,073	0.085	129,837	0.077
-30%	$ 155,763	0.092	$ 151,890	0.096	151,752	0.091	151,477	0.083
-20%	$ 178,015	0.097	$ 173,589	0.102	173,431	0.096	173,116	0.088
-10%	$ 200,267	0.102	$ 195,287	0.106	195,110	0.100	194,756	0.092
Cashflow	$ 222,519	0.106*	$ 216,986	0.110*	216,789	0.104*	216,395	0.097*
+10%	$ 244,771	0.110	$ 238,685	0.114	238,468	0.108	238,035	0.100
+20%	$ 267,023	0.113	$ 260,383	0.118	260,147	0.112	259,674	0.104
+30%	$ 289,275	0.116	$ 282,082	0.121	281,826	0.115	281,314	0.107
+40%	$ 311,527	0.119	$ 303,780	0.124	303,505	0.118	302,953	0.110
+50%	$ 333,779	0.122	$ 325,479	0.127	325,184	0.121	324,593	0.113

Source: Appendix , Cashflow for comparative investment of Scenario 1 and Scenario 2

Note) The above figures for return are based on undiscounted net present value.

In forestry investment, other cost factors (such as planting or legal cost etc.) show normally constant and fixed trends. Hence, it could be said that economic feasibility in forestry investment mainly depends on the fluctuation in the price of the land, leasehold rate, capital cost (eg. interest rate), inflation rate and log price (particularly, for export) provided other physical conditions (eg., tree growth, grazing etc.) are being equal.

Table 5.4 and 5.5 which are derived from Table A.1 in Appendix show that the NPV (Net Present Value) flow is negative throughout most of project period (e.g. from 1st to 28th year). During the establishment and tending phases of a forest rotation, usually the first eight to ten years, there are considerable cash demands for silvicultural operations, so the NPV is negative until the tree realises a return by reaching harvestable age (i.e. 29-30 years). It brings about a significant funding pressure in forestry management, particularly, in the initial stage.

Table 5.6 which is derived from Table 5.4 & 5.5 shows that NPV and B\C (Benefit-Cost) Ratio of Scenario (1) and Scenario (2) with respect to the change of capital cost (eg. interest rate 5% to 10%).

B\C ratio of S(2) is higher than S(1) in either case : i) In case of 5% (interest rate), B\C ratio of S(1) in the final year (ie. 30th year) is 3.1857 and S(2) is 3.4290. Hence S(2) is 7.6% more profitable than S(1) (ie. 3.4290 \ 3.1857 = 1.0764) and ii) in case of 10% (interest rate), S(2) is 23.5% more profitable than S(1) (ie. 1.2814 \ 1.0375 = 1.2351) respectively.

Table 5.4 Cashflow Proforma of S(1) (per partnership) r= interest
(Unit: $)

Yr	Cash-In	Cash-Out	NPV		B\C Ratio	
			r=5%	10%	5%	10%
1	205,290	798,977	-603,463	-612,350	0.2447	0.2336
2	0	193,465	-787,715	-788,227	0.1988	0.1914
3	0	156,795	-929,933	-917,810	0.1737	0.1690
4	2,700	139,895	-1,048,589	-1,021,071	0.1586	0.1542
5	7,050	138,175	-1,153,164	-1,111,077	0.1498	0.1465
6	8,200	167,185	-1,276,256	-1,210,227	0.1407	0.1390
7	8,200	114,605	-1,355,954	-1,270,695	0.1368	0.1358
8	8,200	138,355	-1,448,736	-1,337,858	0.1321	0.1321
9	8,200	147,045	-1,543,006	-1,402,965	0.1276	0.1286
10	7,380	184,155	-1,657,209	-1,478,218	0.1220	0.1244
11	7,380	32,635	-1,672,927	-1,488,212	0.1230	0.1250
12	6,150	29,635	-1,686,833	-1,496,639	0.1236	0.1254
13	6,150	29,635	-1,700,073	-1,504,301	0.1243	0.1257
14	6,150	36,855	-1,716,508	-1,513,358	0.1246	0.1259
15	4,100	32,855	-1,731,129	-1,521,027	0.1246	0.1258
16	4,100	32,855	-1,745,054	-1,528,000	0.1245	0.1258
17	4,100	32,855	-1,758,316	-1,534,339	0.1245	0.1257
18	1,200	35,905	-1,773,483	-1,541,226	0.1238	0.1253
19	0	33,905	-1,787,569	-1,547,324	0.1229	0.1249
20	0	33,905	-1,800,986	-1,552,868	0.1221	0.1245
21	0	33,905	-1,813,766	-1,557,907	0.1214	0.1242
22	0	35,675	-1,826,572	-1,562,728	0.1206	0.1238
23	0	33,675	-1,838,085	-1,566,865	0.1199	0.1236
24	0	33,675	-1,849,047	-1,570,626	0.1193	0.1233
25	0	33,675	-1,859,489	-1,574,045	0.1187	0.1231
26	0	33,385	-1,869,349	-1,577,126	0.1182	0.1229
27	0	31,385	-1,878,175	-1,579,759	0.1177	0.1227
28	0	31,385	-1,886,582	-1,582,153	0.1172	0.1225
29	12,040,200	12,175	1,035,531	-823,986	1.4826	0.5399
30	15,794,747	7,925	4,688,105	80,710	3.1857 *	1.0375 *

Source : Table A.1 (Appendix 1)

Note)

$$NPV = \sum_{i=1}^{n} \frac{I_i}{(1+r)^i} - \sum_{i=1}^{n} \frac{O_i}{(1+r)^{i-1}}$$

$$B/C \text{ Ratio} = \frac{\sum_{i=1}^{n} \frac{I_i}{(1+r)^i}}{\sum_{i=1}^{n} \frac{O_i}{(1+r)^{i-1}}}$$

Table 5.5 Cashflow Proforma of S(2) (per partnership) r= interest

Yr	Cash-In	Cash-Out	NPV		B\C Ratio	
			r=5%	10%	5%	10%
1	200,000	396,530	-206,054	-214,712	0.4804	0.4585
2	0	198,065	-394,687	-394,771	0.3255	0.3153
3	0	66,395	-454,882	-449,643	0.2951	0.2879
4	2,700	59,495	-504,108	-492,498	0.2765	0.2716
5	7,050	162,775	-628,284	-603,218	0.2398	0.2388
6	8,200	191,785	-772,466	-717,638	0.2091	0.2126
7	8,200	139,205	-870,522	-791,989	0.1944	0.1999
8	8,200	162,955	-980,788	-871,774	0.1802	0.1878
9	8,200	171,645	-1,091,713	-948,355	0.1683	0.1778
10	7,380	208,755	-1,221,776	-1,034,041	0.1558	0.1673
11	7,380	57,235	-1,252,595	-1,053,519	0.1550	0.1665
12	6,150	54,235	-1,280,887	-1,070,569	0.1540	0.1655
13	6,150	54,235	-1,307,824	-1,086,071	0.1531	0.1657
14	6,150	61,455	-1,337,303	-1,102,254	0.1519	0.1647
15	5,290	57,455	-1,363,776	-1,116,115	0.1508	0.1637
16	4,100	57,455	-1,389,534	-1,128,978	0.1494	0.1627
17	4,100	57,455	-1,414,064	-1,140,671	0.1481	0.1618
18	4,100	60,505	-1,438,759	-1,151,903	0.1468	0.1609
19	1,200	58,505	-1,462,590	-1,162,229	0.1450	0.1598
20	0	58,505	-1,485,742	-1,171,795	0.1430	0.1587
21	0	58,505	-1,507,794	-1,180,491	0.1412	0.1577
22	0	60,275	-1,529,429	-1,188,636	0.1395	0.1568
23	0	58,275	-1,549,352	-1,195,795	0.1380	0.1560
24	0	58,275	-1,568,322	-1,202,303	0.1365	0.1553
25	0	58,275	-1,586,392	-1,208,219	0.1352	0.1546
26	0	57,985	-1,603,517	-1,213,571	0.1339	0.1541
27	0	55,985	-1,619,261	-1,218,269	0.1328	0.1536
28	0	55,985	-1,634,258	-1,222,539	0.1317	0.1531
29	12,040,200	161,799	1,249,685	-474,747	1.6497	0.6787
30	15,384,700	164,501	4,769,344	396,578	3.4290 *	1.2814 *

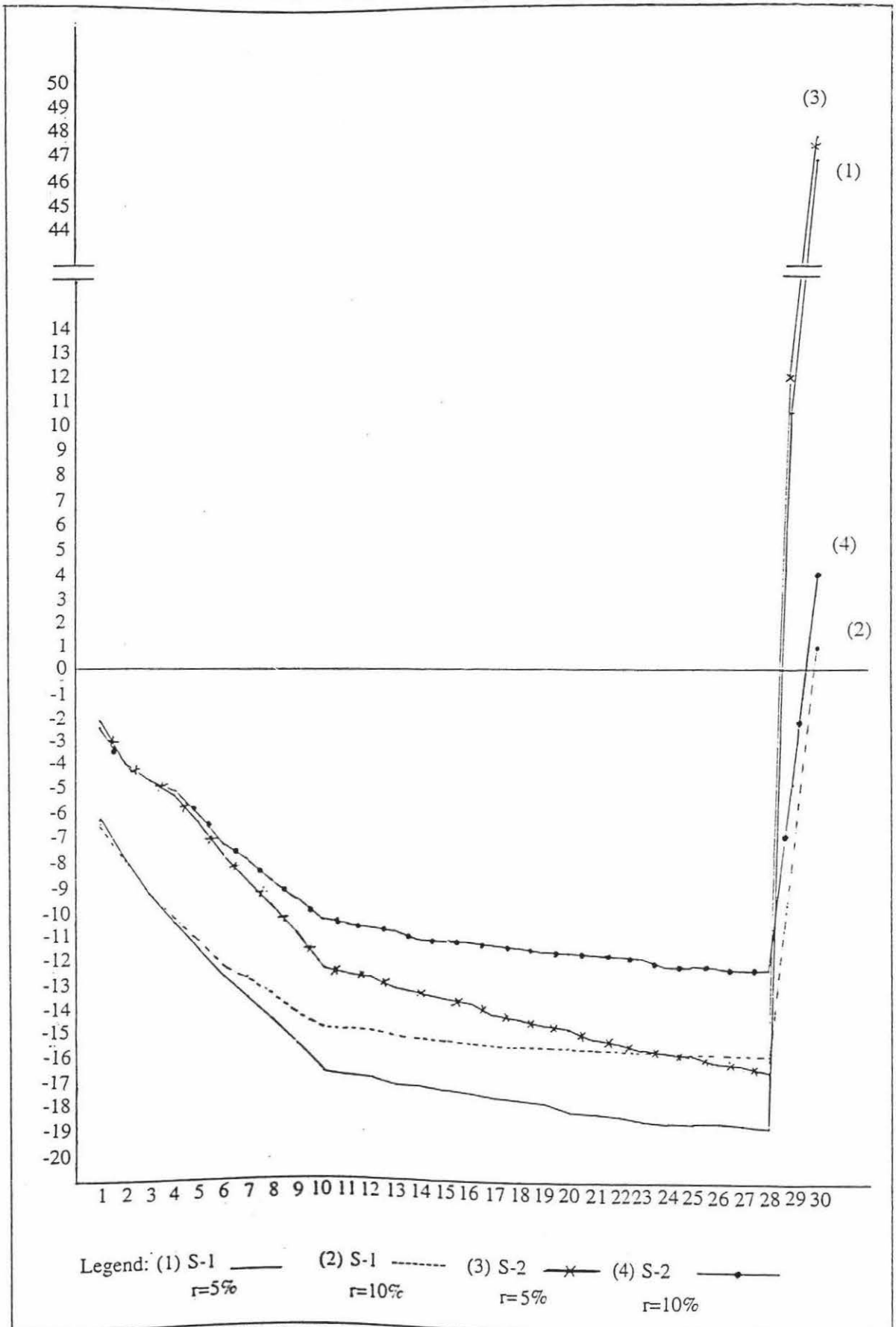
Source: Table A.1 (Appendix 1)

Table 5.6 Comparison of Profitability of S(1) & S(2) (unit:$)

S	Loan	Loan term (year)	Interest rate	Final year NPV	Funding pressure period	Final year B\C ratio	S2 B\C / S1 B\C
S 1	200,000	3rd & 4th	5%	4,688,105	1-28th year	3.1857 (a)	(c)\(a)
			10%	80,710	1-29th year	1.0375 (b)	1.0764*
S 2	200,000	29th & 30th	5%	4,769,344	1-28th year	3.4290 (c)	(d)\(b)
			10%	396,578	1-29th year	1.2814 (d)	1.2351*

In Figure 5.6, S(2)'s NPV flow are higher than S(1) over most of project period. It means that S(2) has lower funding pressure than S(1). It mainly comes from the reduction in cost of land and the three basic components of S(2) i.e., ' agroforestry ' ' timber bond ' and ' investment with contingent trade system ' which reduce initial funding cost. In conclusion, under the above assumptions, the land leasehold scenario S(2) is more profitable than the land purchase scenario S(1).

Figure 5.6 NPV Flow of S(1) & S(2) (Unit: $00,000)



Source: Table 5.4 & Table 5.5

The major findings from the above analysis are as follows :

1) The current opportunity cost of leasehold in S(2) for land purchase in S(1) is $ 60\ha in this project. Leasehold rates fluctuation is major factor which impacts on IRR (Table 5.3).

2) Fluctuations in log prices have small impacts on harvest revenue and corresponding IRR (Table 5.3).

3) Changes in land purchase price significantly influences the cashflow, particularly when it brings about capital gain. However, land price fluctuations were not analyzed as the price was assumed fixed at the present market price.

4) Capital cost (e.g. interest rate) influences the B\C (Benefit \Cost) ratio and the NPV of S(1) and S(2) (Table 5.4 , 5.5 , 5.6 ,& Figure 5.6).

5.4.3 Advantages of Modified System

In conclusion, the advantages of this modified system are as follows :

(i) As pointed out in chapter 2, the availability of land resources is crucial for further forestry development. Currently in New Zealand, land availability for forestry is faced with great difficulty and one of the major reasons is the difficulty to acquire large tracts of suitable forestry land. Under this situation, the issue then becomes how to obtain cheap, suitable land resources for afforestation in order to ensure the on-going development of forestry.

The modified joint venture \ trust system proposed in this thesis can provide an effective vehicle to make land available by removing the need to purchase land and therefore avoids this large costs right at the initial stage of the project. This situation will become more advantageous when the price of land increases, as the purchase cost of land already represents over 50% of the project's cost in the first year.

As a matter of course, if land prices keep on increasing, so will rental for leasehold land. As demonstrated in the above tables, opportunity cost of leasehold rate for land purchasing cost is $ 60 \ha on the cashflow since it approximates the IRR of S(1) and S(2) in Table 5.3.

(ii) The modified system is different from the traditional leasehold system in that it does not simply consist of a relationship between land owners (lessors) and lessees. The proposed system provides a more efficient investment structure, to develop and control projects, by creating an intermediary, the Trust Co., which has forestry and financial expertise to execute the project more efficiently than was the case in the small-scale individual land owner (lessor) versus lessee relationships.

(iii) Under the Trust Co.'s management skill, expertise and funding ability, this system can perform forestry development reaping economies of scale by integrating or subdividing forest blocks freely as the land ownership is temporarily transferred to the Trust Co. during the project period.

(iv) Because the basic structure of this system is originally trust-leasehold, the profitability of this system is not a function of the buying and selling of land or of any land speculation. On the other hand however, capital gains are important to the overall profitability of the project and without them, the project may not be as attractive to investors. Generally speaking, capital gain of the property could be realised when the property was sold.

In order to overcome that problem, two options are devised which could bring about similar effects to capital gains for the investor. That means, there could be two types in Trust systems.

One is 1) land leasehold-trust, the other is 2) land purchase-trust by Trust Co.

Figure 5.7 Type 1) Land-leasehold by Trust Co.

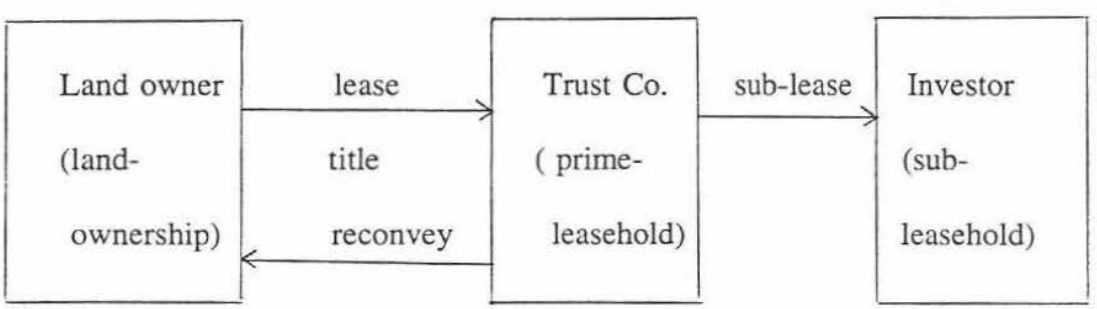
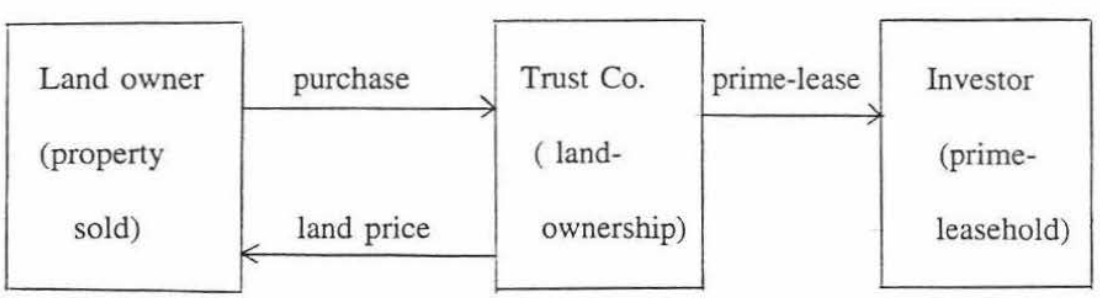


Figure 5.8 Type 2) Land-purchase by Trust Co.



In Type 1) leasehold-trust, capital gains are not available to the Trust Co. as it has no right to sell the property (only the former land owner can enjoy capital gain after reconveying his land from the Trust Co.).

However, in Type 2) purchase-trust , Trust Co. has an authority to dispose of the property as a land owner, so Trust Co. can distribute capital gain to the investor by reflecting expected land price increase (ie., capital gain) on the Investment Unit (eg., timber bond). Instead, in Type 2), it takes large amount of capital for initial land purchasing cost.

In either case, overseas investors cannot purchase land. Either in the sub-lease or prime-lease case (Figure 5.7 or 5.8), the overseas investors cannot dispose of land at their will. The aim of this ensures long-term stability of forestry management by preventing frequent sale of land and land speculation by the investors.

By adopting ' the land purchasing-trust ' option of Type 2), it could bring about similar effects to capital gains for the investor without purchasing land by reflecting the anticipated land price fluctuation rate on the ' timber bond ' (ie., the investment unit) by means of so-called ' land price fluctuation index system ' through periodical land price revaluation (see Basic components for S(2);(c) in Appendix).

(v) Forestry investment requires a substantial outlay of funds during the initial years. This could be reduced by adopting the ' long-term land leasehold ' and ' Investment with contingent trade system '.

Under the latter, funds could be raised from overseas investors and repayment of the loans would be in kind (eg., timber) reflecting compound interest at the time of harvest.

If further ' the normal forest system (perpetual yearly wood flow) ' can be adopted, revenues would be available at regular intervals from wood products as well as grazing. In this case, investors could enjoy also short-term returns.

(vi) The biggest merit of New Zealand forestry to overseas investors lies in its cheap land price and leasehold rates compared with demanding countries such as Korea or Japan.

This is the crucial point to attract overseas investors from the land resource-poor countries because their land price & rental cost is very high. Since the margin for the expected capital gain is promising, the possibility clearly exists for capital mobility, both into and out of the ownership and control of forestry operations, and into other spheres of economic activity, in New Zealand and abroad by multinational enterprises's activities etc.

The establishment of the modified trust system, as a vehicle for international forest investment, ultimately would contribute to international land and capital factor mobility in connection with FDI (& FOF) channel between land resource-rich (supplying) countries (such as New Zealand) and land resource-poor (demanding) countries (such as Korea).

CHAPTER SIX

CONCLUSION AND DISCUSSION

6.1 Introduction

Major changes are taking place in the world of forestry. A potential shortage of wood supply is driving demanders and suppliers in new allegiances and foreign direct investment is playing an important role. New Zealand forestry will need to reevaluate its role within this changing world environment. Within this country, increasing constraints will be placed on the harvesting of indigenous forests for ecological and tourism related reasons. Other developments, such as the Resource Management Act of 1991, will influence the availability of land and other resources for future afforestation.

The direction of New Zealand forestry can be classified into three categories :

1) plantation forestry (ie. exotic production forest) 2) agroforestry (ie. integration of agriculture and forest) and 3) native forestry (ie. indigenous forest).

The research in this thesis emphasises the economic and marketing perspectives of plantation forestry.

In New Zealand, plantation forest harvest volumes are expected to increase nearly 3 times from 2000 onwards. As new wood matures, the annual amount available for harvest is expected to rise to 19 million CUM (cubic metre) by the year 2000 and to 31 million CUM by 2010. Over this time period, domestic consumption is not expected to substantially increase and most of the predicted production will have to be exported.

Producing good quality timber does not necessarily guarantee market and economic prices. Experts have raised doubts about the ability of New Zealand forestry industries to market all this extra output and there is a clear need for a closer analysis of the world market and the behaviour of competitors. The future of New Zealand's forestry will depend on aggressive marketing. The need is for a concerted marketing effort to realise on the substantial investment made in plantation forestry.

Considering the macro, conceptual nature of this thesis, an issue-oriented critical review and institutional approach were adopted instead of statistical, micro analysis in order to set up comprehensive strategy by seeking out realistic solutions which mainly derive from the general, current issues. The macro-level legal framework of forestry internationalisation has been explored by concentrating on strategic investment and marketing structures which can connect production in New Zealand with the consumer markets in demanding countries. In particular, the purpose of this thesis was to look for a long term link - the bridge - between specialised forest producers and consumers, which would bring about a more stable overseas market situation. This purpose led to the development of a modified joint venture investment structure which, as was argued, could overcome the impediments that exist with the current joint venture structure and which discourage FDI (foreign direct investment) in forestry. The new investment and marketing structure was developed by adopting a legal trust framework. This structure was chosen because it provides a suitable mechanism to facilitate mobility of land resources by separating land use rights from land ownerships. The concept of international factor mobility by using trust framework is at the heart of this study.

Studies dealing with general trade relationship (eg., not only bilateral but multilateral) abound, but little is done on the subject of international factor mobility of land resources. The trust framework for forestry development and marketing is developed here as a means toward achieving greater international factor mobility for land resources. A limitation of the research is however, that this framework has not been tested empirically and is still very much at the conceptual state. Even at that stage, it seems to raise more questions than answers.

6.2 Research Findings & Discussion

In order to examine the feasibility of this modified trust system, the following research findings were summarised by discussing a series of questions and answers on the basis of material in previous chapters and the empirical analysis in chapter five.

[Q-1]

What policy implications does forestry globalization bring about for New Zealand forestry development in the future ?

[A]

As examined in chapter 2 and 3, New Zealand forestry is globalizing and must become more globalize in order to align this industry with the requirements of today's global economy. It is applicable to not only forestry but also to other agricultural sectors which have similar export-oriented structure. World-wide globalisation impacts on internationalisation of New Zealand economy and eventually, it facilitates New Zealand forestry globalisation.

Two factors were identified as a salient agents (forces) which facilitate New Zealand forestry globalisation : environmental pressure and MNE's global business activities (eg. overseas investment etc.). In this thesis, globalisation was defined as the interactions between resource-supplying and demanding countries (ie., centripetal and centrifugal forces) and major factors were examined in terms of economic perspectives. The new role and status of New Zealand forestry were emphasized as a part of world-wide resources in line with globalisation of forestry. The modified joint venture\ trust system was proposed as a comprehensive strategy in preparation for globalisation.

[Q-2]

What implications can be derived from developments in the Asian Pacific rim market (including Korean market) for New Zealand forestry ?

[A]

The Asian pacific rim context basically rests on the framework of changing comparative advantage in factor endowment, reciprocally related to the rapidly industrialising resource-poor (eg.,wood-deficit) countries of Asia and the resource-rich countries such as New Zealand. Chapter 4 of this thesis presented a description of past trade patterns in principal forest commodities in the Asia pacific region. The discussion focused particularly on Korea --- their sources of wood, their output mix and the market destination of their exports. The bilateral trade and production of these countries is explained in terms of forest resources, details of forestry trade pattern, foreign investment implications for New Zealand. Recent trend shows that the concept of vertical and horizontal integration has taken place in forest product industry and modern integrated mills began producing the full range of forest products.

Considering the above trend, the most rational adjustment can be feasibly realised through moving the processing industries to the countries where the tree grow. Thus the international location of processing industry is extremely mobile, being able to move to any country where forests exist or where logs are readily accessible. The trend of overseas joint venture investment is expected to increase therefore as Asia NICs have lost their comparative advantage in wood-processing industries due to the following reasons : --- their limited natural factor endowments; --- the rising costs of importing logs, given increases in freight costs and fob prices; --- the high cost of growing and afforestation, given land costs and competition with agricultural alternative uses in these countries; and --- the superior productivity of their labour and capital in industries (eg., manufacturing) other than wood processing.

Hence, the possibility of ' factor-intensity reversals ' exists. That means, the original labour-intensive commodity might become land-intensive if the relative price of labour rises, through being able to substitute land for labour at a faster rate than the originally land-intensive commodity.

The decline of plywood industry in Korea is a good example of this phenomenon. Consequently, the higher the productivity and opportunity costs of labour and capital in other industries in Asia NICs, the more attractive the extensive land areas in New Zealand appear for growing trees.

[Q-3]

Is the proposed modified trust system [ie., Scenario(2)] more profitable for both land owner and investor than the current partnership forestry investment scheme ?

[A]

Yes. In case of S(1), B\C ratio is 1.0764 while B\C ratio of S(2) is 1.2351 (Table 5.6). In S(2) however, it is desirable to increase the profitability to attract overseas investment and safeguard continuous reafforestation project. Particularly, the long-term production cycle of forestry may discourage forest investment due to funding pressure (eg., cashflow problem etc.). The NPV (Net Present Value) flow in Figure 5.6 which was derived from cashflows presented in Table 5.4 and 5.5 shows minus (-) value throughout most of project period (ie., 1-28th year). Under the same interest rate (eg., r=5% or r=10%), S(2) is more profitable than S(1) in either case. Some basic components were proposed for the modified trust system in order to alleviate long-term problem in forestry. It will be necessary to experiment with the model to determine its feasibility for practical decision making process.

[Q-4]

To what extent would the profitability increase by adopting this modified trust system [S(2)] ?

[A]

Generally speaking, the more mortgage and financing conditions improve, the more profitability of S(2) increases relative to S(1).

On the other hand, the more interest rate (ie., capital cost) increases, the less profitable: if the interest rate increases from 5% to 10% in S(1), the profitability index (ie., final year (ie., 30th year) of B\C ratio decreased to 1.0375 from 3.1857 (Table 5.4). And S(2) is vice versa (ie., decreased to 1.2814 from 3.4290) (Table 5.5).

However, if the land price would have increased to a great extent at the termination of this project (eg., after 30 year-rotation), this would make S(1) (ie., land-purchase type) more profitable than S(2) (ie., land-leasehold type) owing to capital gain. In that case, S(2) could be modified as ' land-purchase type by Trust Co.'(Figure 5.8) to overcome the weakness of not having capital gain. Then, the Trust Co. (as a land owner) can distribute capital gains to the investor by incorporating its value in timber bonds. Thus, S(2) could be a more efficient system than S(1) by applying it to both land-leasehold and land-purchase case either. However, in case of ' land-purchase type by Trust Co.', it will take a lump-sum capital to finance the land purchase cost and impact on Trust Co's cashflow due to funding pressure. In S(2), it is assumed that the mortgage loan is to be repaid at the time of harvest (ie., at the time of income realisation) in order to lessen initial funding pressure.

[Q-5]

Does the modified trust system S(2) provide encouragement for participation by overseas investors ?

[A]

It mainly depends on opportunity cost for the land (ie., leasehold rate and land price increasing rate) provided other things being equal. In Table 5.3, opportunity cost for the leasehold rate in S(1) and S(2) is $ 60\ha which approximates the profitability (ie., IRR) of S(1) to S(2) [ie., IRR=0.106 in S(1), IRR=1.104 in S(2)].

Therefore, if the land leasehold rate is lower than $ 60\ha (eg., $30\ha), S(2) is more profitable than S(1) in this project. On the other hand, if the leasehold rate is higher than $60\ha (eg., $120\ha), S(1) is more profitable than S(2).

If the land owner is willing to retain the farm business without selling his land by leasing the land to Trust Co., he would participate in the project S(2) if the leasehold rate is lower than $60\ha which is more profitable than S(1) provided other things being equal.

It can facilitate the participation of overseas investor in this project if he is a real demander for wood products (eg., wood processor) who is willing to import wood raw material on a long-term, stable basis by adopting ' investment with contingent trade system '. Also, he could enjoy capital gain without purchasing land by adopting ' land-purchase type by the Trust Co.' option. In that case however, it will take a lump-sum capital to finance the land purchase cost by the Trust Co.

[Q-6]

In short, is it feasible to introduce this modified trust system into current forestry project ?

[A]

It is recommended that the modified trust system be adopted as it provides the following advantages : it acquires relatively cheap land for continuous afforestation at a reasonable rental cost, it alleviates initial funding pressure, it increases profitability and obtains a stable export market niches by adopting ' investment with contingent trade system ' etc. However, it is crucial to examine fully potential problems (such as legal restrictions, various impediments to execute the project etc.) before this system is adopted.

6.3 Further Research and Recommendation

The empirical analysis in chapter five was performed to investigate the feasibility of modified trust system in terms of economic and marketing perspectives.

In order to promote forestry investment & trade, three main impediments can be pointed out : i) The long-term problem (ie., time-factor) ii) cashflow profile and iii) market uncertainty. Four basic components of the modified trust system, that is, i) ' the normal forest system ' ii) ' agroforestry ' iii) ' timber amortisation bond ' and iv) ' investment with contingent trade system ' were proposed in order to alleviate the above impediments.

In the final analysis, as the saying goes, " The proof of the pudding is in the eating ". Further research is needed to test and verify by decision making process.

For example, the feasibility of the basic components needs to be experimented not by superficial numerical analysis but by decision maker's (eg., forestry company etc.) practical business activities.

In order to refine this simulation model, new forestry investment structure and various menus need to be devised to attract overseas investment.

Further, problems associated with restrictions on foreign investment such as legal, taxation, trade barrier, and various incentive measures need to be investigated.

The conceptual model developed however, could play a role to solve the fundamental problems which are faced by New Zealand forestry (eg., land or capital problems etc.) by facilitating international factor mobility. This framework could be applied not only to the forestry sector but also the other sectors and demanding countries (eg., Asian Pacific Rim) by modifying it to adjust to real world.

APPENDIX

Cashflow for Comparative Investment of Scenario 1

and Scenario 2

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Table A.1 Cashflow for Comparative Investment of Scenario(1) & (2)

(Unit: $) * S1:scenario 1 S2:scenario 2 C: common (S1 &S2)

No.	CASHFLOW FOR PARTNERSHIP																																
1	31 December Year	S	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	TOTAL
2	Year No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
3	Total ha. planted\harvested		180	230																											180	230	410
4	Expenditure \ 5 . land purchase	S1	410047																														410047
6	. land leasehold rate	S2	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	24600	738000
7	. land preparation	C	9740	1200																													10940
8	. mortgage principal repayment	S1			100000	100000																											200000
9	. overseas loan repayment	S2																													100000	100000	200000
10	. formation expenses	C	135000																														135000
11	. legal fees & stamp duty	C	46000																														46000
12	. trees & planting	C	94300	94300																													188600
13	. releasing & blanking	C	25920	37320	5300																												68540
14	. thinning & pruning	C					103680	132480	81900	104650	115920	148120																					686750
15	. protection	C	4650	3150	3150	3150	3150	2660	2660	2660	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080			46830
16	. mortgage interest	S1	17000	20000	15000	5000																											57000
17	. overseas loan interest	S2																													25024	31976	57000
18	. maintenance	C	24000	8000	1600	6000	3600	3600	3600	3600	3600	3600	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200			82800
19	. insurance	C	520	1080	1800	1800	1800	2500	2500	2500	2500	5410	5410	5410	5410	8630	8630	8630	8630	9680	9680	9680	9680	9450	9450	9450	9450	7160	7160	7160	4250		175410
20	. rates	C	3320	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	131645
21	management	C	3980	6490	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020	9020			244990
22	. rustees executors	C	7500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	109000
23	. audits	C	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000			56000
24	mapping & valuation	C	5000		1000			2000				2000				2000																	12000
25	. other	C	10000	12000	10000	5000	7000	5000	5000	6000	5000	5000	6000	3000	3000	5000	3000	3000	3000	5000	3000	3000	3000	5000	3000	3000	3000	5000	3000	3000			135000
26	TOTAL EXPENDITURE	S1	798977	193465	156795	139895	138175	167185	114605	138355	147045	184155	32635	29635	29635	36855	32855	32855	32855	35905	33905	33905	33905	35675	33675	33675	33675	33385	31385	31385	12175	7925	2796552
		S2	396530	198065	66395	59495	162775	191785	139205	162955	171645	208755	57235	54235	54235	61455	57455	57455	57455	60505	58505	58505	58505	60275	58275	58275	58275	57985	55985	55985	161799	164501	3124505
27	Receipts \ 28 . mortgage loan	S1	200000																														200000
29	. overseas loan	S2	200000																														200000
30	. grazing	S1	5290			2700	7050	8200	8200	8200	8200	7380	7380	6150	6150	6150	4100	4100	4100	1200													94550
		S2				2700	7050	8200	8200	8200	8200	7380	7380	6150	6150	6150	5290	4100	4100	4100	1200												94550
31	. harvest	C																													12040200	15384700	27424900
32	. sale of land	S1																														410047	410047
33	TOTAL RECEIPTS	S1	205290			2700	7050	8200	8200	8200	8200	7380	7380	6150	6150	6150	4100	4100	4100	1200												12040200	15794747	28129497
		S2	200000			2700	7050	8200	8200	8200	8200	7380	7380	6150	6150	6150	5290	4100	4100	4100	1200												12040200	15384700	27719450
34	NET CASHFLOW	S1	-593687	-193465	-156795	-137195	-131125	-158985	-106405	-130155	-138845	-176775	-25255	-23485	-23485	30705	-28755	-28755	-28755	-34705	-33905	-33905	-33905	-35675	-33675	-33675	-33675	-33385	-31385	-31385	12028025	15786822	25332945
		S2	-196530	-198065	-66395	-56795	-155725	-183585	-131005	-154755	-163445	-201375	-49855	-48085	-48085	55305	-52165	-53355	-53355	-56405	-57305	-58505	-58505	-60275	-58275	-58275	-58275	-57985	-55985	-55985	11878401	15220199	24594945
	CASHFLOW FOR EACH QUALIFYING COMPANY																																
5	. Company cashflow	S1	-23747	-7739	-6272	-5488	-5245	-6359	-4256	-5206	-5554	-7071	-1010	-939	-939	-1228	-1150	-1150	-1150	-1388	-1356	-1356	-1356	-1427	-1347	-1347	-1347	-1335	-1255	-1255	481121	631473	1013318
		S2	-7861	-7923	-2656	-2272	-6229	-7343	-5240	-6190	-6538	-8055	-1994	-1923	-1923	-2212	-2087	-2134	-2134	-2256	-2292	-2340	-2340	-2411	-2331	-2331	-2331	-2319	-2239	-2239	475136	608808	983798
	CASHFLOW FOR EACH INVESTMENT UNIT (Before-Tax)																																
																																No. 37	
1	. Cash payable per unit per annum	S1	-4749	-1548	-1254	-1098	-1049	-1272	-851	-1041	-1111	-1414	-202	-188	-188	-246	-230	-230	-230	-278	-271	-271	-271	-285	-269	-269	-269	-267	-251	-251	96224	126295	202664
		S2	-1572	-1585	-531	-454	-1246	-1469	-1048	-1238	-1308	-1611	-399	-385	-385	-442	-417	-427	-427	-451	-458	-468	-468	-482	-466	-466	-466	-464	-448	-448	95027	121762	196760
	TAXATION FOR EACH INVESTMENT UNIT (After-Tax)																																
1	. Taxation benefit at 33 cents in Dollar	S1	+1567	+511	+414	+362	+346	+420	+281	+344	+367	+467	+67	+62	+62	+81	+76	+76	+76	+92	+89	+89	+89	+94	+85	+89	+89	+88	+83	+ 83			+6553
		S2	+519	+523	+175	+150	+411	+485	+346	+409	+432	+532	+132	+127	+127	+146	+138	+141	+141	+149	+151	+154	+154	+159	+154	+154	+154	+153	+148	+148			+6612
2	. Taxation payable at 33 cents in Dollar	S1																													-31754	-41677	-66879
		S2																													-31359	-40181	-64931
3	. Cash payable per unit after tax	S1	-3182	-1037	-840	-736	-703	-852	-570	-697	-744	-947	-135	-126	-126	-165	-154	-154	-154	-186	-182	-182	-182	-108	-180	-180	-180	-179	-168	-168			-13217
		S2	-1053	-1062	-356	-304	-835	-984	-702	-829	-876	-1079	-267	-258	-258	-296	-279	-286	-286	-302	-307	-314	-314	-323	-312	-312	-312	-311	-300	-300			-13417
4	. Cash receivable per unit after tax	S1																													+64470	+84618	
		S2																													+63668	+81581	

Table A.2 Cashflow Assumption

(Unit: $)

No. Item	Assumption	partnership	company	unit	scenario
1 General	Although financing reporting standard 29 of the New Zealand Society of Accountants requires division into operating, investing and financing activities, because of the single project nature of the investment, the cashflow projection has been compiled as a single statement.		1 \25 of partnership	1 \5 of qualifying co.	C
2 Hectares planted	The calculated area for planting, using the aerial photography available, which may be subject to minor fluctuations Planting will be undertaken over a two year time frame in the winters of 1994 and 1995. Planting is staggered in order to minimise risk and to spread the costs of the project.	410 ha	16.4 ha	3.28 ha	C
3 Land purchase	The apportioned total cost of the land inclusive of the costs of subdivision.	410,047	16,402	3,280	S1
4 Land leasehold	Leasehold rate is assumed to be $60\ha\year. Fluctuation in leasehold rate is not considered.	738,000	29,520	5,904	S2
5 Land preparation	The bugeted cost of clearance of the scattered scrub.	10,940	438	88	C
6 Mortgage principal repayments	The scheduled mortgage repayments as arranged with Bank of New Zealand.	200,000	8,000	1,600	S1
7 Overseas investment loan repayments	Assumed to repay overseas loan ($200,000) in 2022, 2023 respectively.	200,000	8,000	1,600	S2
8 Formation expenses	The budget for all the formation expenses. Following the successful coordination of the project, the Promoter will be paid the total as budgeted and will be responsible for any unders or overs.	135,000	5,400	1,080	C
9 Legal fees & stamp duty	The budget for legal fees in respect of all aspects of the setting up of the Investment, plus company filing fees and stamp duty. Following the successful co-ordination of the project, the Promoter will be paid the total as budgeted and will be responsible for any unders or overs.	46,000	1,840	368	C
10 Trees & planting	The projected cost of trees and planting, inclusive of supervision, based upon actual 1993 costs. The 1994 amount includes an $11,500 seed deposit for 1995 which by coincidence has resulted in identical totals for both 1994 and 1995.	188,600	7,544	1,509	C

No. Item	Assumption	Partnership	Company	Unit	Scenario
11 Releasing & blanking	The projected cost of releasing and blanking, inclusive of supervision, based upon actual 1993 costs.	68,540	2,742	548	C
12 Thinning & pruning	The projected cost of thinning and pruning, inclusive of supervision, based upon actual 1993 costs.	686,750	27,470	5,494	C
13 Protection	The projected cost of control of unwanted noxious animals.	46,830	1,873	375	C
14 Mortgage interest	The calculated mortgage interest payable in terms of the mortgage arranged with Bank of NZ.	57,000	2,280	456	S1
15 Overseas loan interest	It is assumed that the same amount of overseas loan interest as mortgage loan proportionate to harvest amount in year of 2022 ($25,024) and 2023 ($31,976) respectively.	57,000	2,280	456	S2
16 Maintenance	The projected cost of the maintenance of the property, including the cost of maintaining existing fences and tracks.	82,800	3,312	662	C
17 Insurance	The quoted cost of the special purpose forest insurance scheme organised by the New Zealand Forest Owners Association with the New Zealand Insurance Company Ltd. In addition to forest insurance, $1,000,000 public liability insurance is also included.	175,410	7,016	1,403	C
18 Rates	The budgeted amount of the estimated annual rates payable to the District Council.	131,645	5,266	1,053	C
19 Management	The fee payable to Forest Co. as manager, calculated on the basis of $22 per planted hectare under management per annum, plus a records establishment fee of $2,000 in year 0.	244,990	9,800	1,960	C
20 Trustees Executors	The quoted initial and annual fee payable to the Trustee Executors and Agency company of New Zealand Ltd, inclusive of disbursements.	109,000	4,360	872	C
21 Audits	The budgeted amount for the annual financial and forestry audits.	56,000	2,240	448	C
22 Mapping & valuations	The budgeted amount for aerial mapping, plus forest valuations for insurance purposes.	12,000	480	96	C
23 Other	The budgeted amount to meet other costs, including annual company return filing fees, overdraft interest, New Zealand Forest Owners Association subscription, Ministry of Forestry forest health survey costs, cost of Investor meetings plus a contingency.	135,000	5,400	1,080	C

No. Item	Assumption	Partnership	Company	Unit	Scenario
24 Mortgage loan	The mortgage loan as arranged with the Bank of New Zealand.	200,000	8,000	1,600	S1
25 Overseas investment loan	It is assumed that the same amount of overseas loan as mortgage loan.	200,000	8,000	1,600	S2
26 Grazing	The projected grazing revenue, based upon current grazing rates being paid in the locality.	94,550	3,782	756	S1
27 Grazing	Total grazing revenue is same as S1 and S2, but the first year's revenue is assumed to be accrued in year of 1997 (4th year) in S2.	94,550	3,782	756	S2
28 Harvest	The projected harvest receipts based upon the net stumpage calculations. Year Harvest area Calculation 2022 180 hectares 180 x $66,890 = $ 12,040,200 2023 230 hectares 230 x $66,890 = $ 15,384,700	27,424,900	1,096,996	219,399	C
29 Sale of land	It is assumed that the land will be sold at the end of the first rotation following harvest. The fluctuation of land price is excluded.	410,047	16,402	3,280	S1
30 Reconveyance of land	Land assumed to be reconveyed to the landowner status quo at the end of the first rotation at no additional cost.				S2
31 Interest	Estimated interest earned from government stock case of 5% or 10% in NPV and B\C ratio calculation				C
32 Tax to pay	Tax to pay net of losses assuming sufficient continuity of shareholding to enable losses to be carried forward and assuming no change in current tax legislation. It is assumed a tax rate of 33 cents in the dollar (ie.,33%).				C
33 Inflation	All costs and revenues stated are at present day values with no allowance for inflation.				C

EXPLANATION OF CASHFLOW OUTLINE & BASIC COMPONENTS

i) Cashflow Outline for Scenario (1) & (2)

The projected cashflow for S(1) & S(2) Forest Investment is set out in detail on Appendix. The projection includes the anticipated investors' contributions and share of the projected harvest receipts, plus taxation analysis.

The cashflow is based upon the detailed afforestation program and the harvest receipts calculation set out ' calculation of the harvest receipts '.

. PARTNERSHIP

Most of the financial activity occurs in the partnership cashflow as the partnership will be undertaking the forestry project on behalf of the qualifying company partners.

. EACH QUALIFYING COMPANY

(No.35) Company cashflow

The net cashflow for the partnership has been divided by 25 to arrive at the amount of the partnership's total cashflow attributable to each qualifying company partner per annum (e.g., 410 ha x 1\25 = 16.4 ha.).

. EACH INVESTMENT UNIT

The structure of the investment requires the investors to purchase the company shares. $ 1,000 is the total consideration for the purchase of the company share capital and relates to the approximate cost of establishment of each company. Each investment unit's portion of this total is $200. This share purchase consideration has been included in the calculation to arrive at the IRR for the investment (e.g., 410 ha x 1\125 = 3.28 ha).

(No. 36) Cash payable per unit per annum

This is the amount of each investment unit's share of the qualifying company's cashflow, arrived at by dividing the qualifying company's cashflow by 5 (the number of investment unit's in each qualifying company).

(No. 37) Cash receivable per unit per annum

This is the amount of the anticipated dividends to be paid per investment unit from the projected harvest proceeds.

. TAXATION ANALYSIS

This section analyzes an investor's projected annual tax paid position per investment unit, assuming a tax rate of 33 cents in the dollar. For example, in year 1 of S(1) the cash payable of $1,567 (e.g. $ 4,749 x 33%).

(No. 40) Cash payable per unit after tax

This is the amount of the anticipated cash payable per investment unit arrived at by deducting (No.38) taxation benefit from (No.36) cash payable per unit per annum.

(No. 41) Cash receivable per unit after tax

This is the amount of the anticipated net return per investment unit from the projected harvest proceeds, after adjustment for tax at 33 cents in the Dollar arrived at by deducting (No.39) taxation payable at 33 cents in Dollar from (No. 36) cash payable per unit per annum.

ii) Basic Components for Scenario (2)

1) The Normal Forest System (Perpetual Yearly Wood Flow)

The normal forest is a conceptual model for forest regulation. The model is predicated on cutting fairly small, uniform blocks of even-aged timber.

The management objective is maximum timber production by converting from long-term growth period to ' perpetual yearly wood flow '.

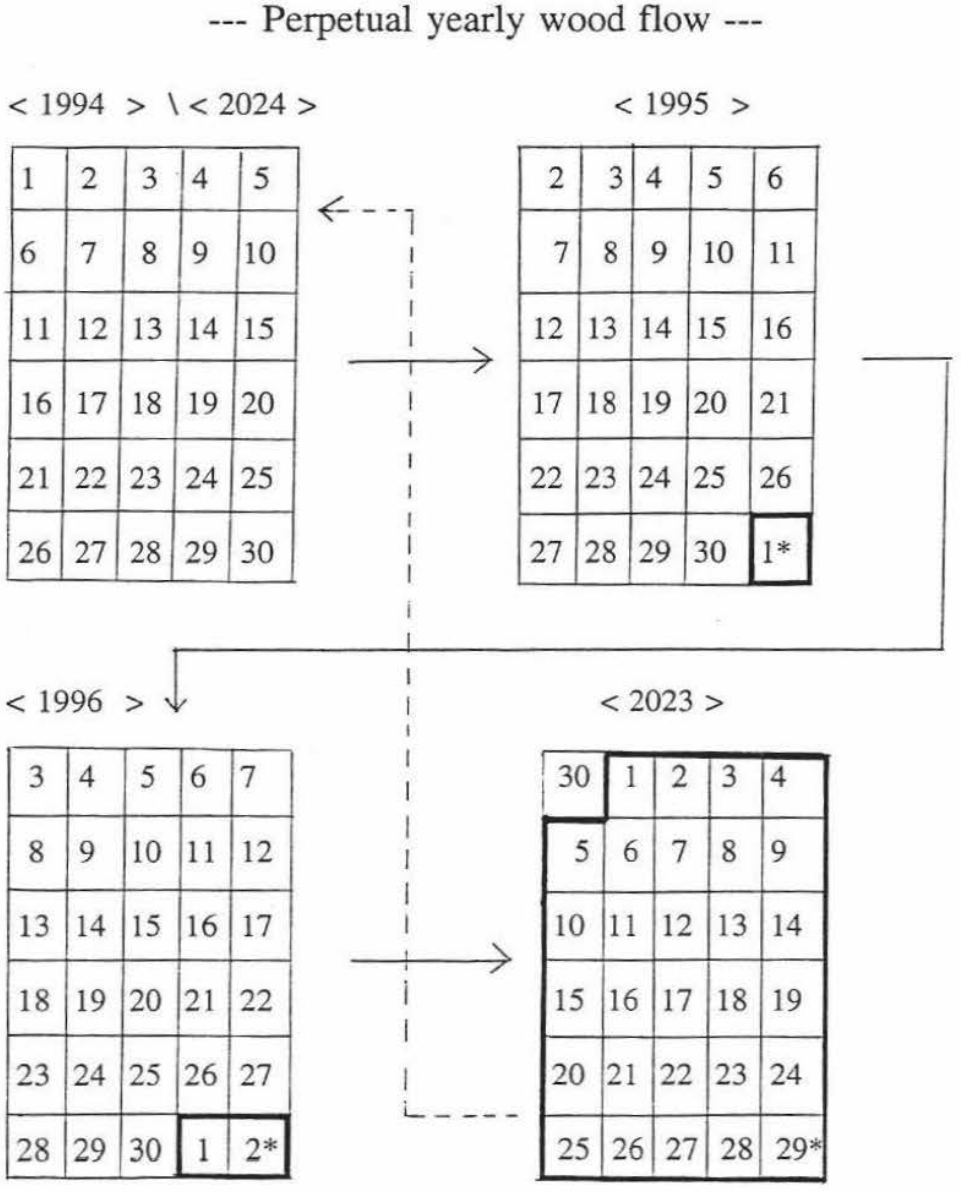
The conception of ' perpetual yearly wood flow ' is correlated with uneven area-age class distribution. In managed Radiata pine forests, for example, the rotation age would be 30 years, so one-thirty (1 \ 30) of the forest area would be harvested annually.

The normal forest is defined as one having (1) normal increment (2) normal age class distribution, and (3) normal growing stock levels.

Normal age class distribution occurs when the forest had a series of stands of equal productivity varying in age by equal intervals from the youngest age class to the oldest. The oldest age class is equal to the rotation age. This age distribution causes the periodic even timber harvest. Normal growing stock is automatically obtained when there is normal increment and age class distribution.

The real normal forest does not exist with all its conditions fulfilled because of the diversity in nature (eg., some genetic variation in growing stock etc). However, the concept of a normal forest still has great value. It is the normative model for even-aged management plans and embodies management principles that foresters currently strive to affect. The idea of a ' perpetual yearly wood flow ' is basic to all management plans to alleviate long-term production rotation problem if it is well managed by utilising already established uneven-aged distribution blocks.

Figure A.1 Conceptual Map of the Normal Forest Blocks



Note) It is assumed that there are 30 blocks of Radiata pine of already established uneven-aged distribution and that equivalent reafforestation is practised instantaneously to normal stocking after harvesting annually. Numbers in cells (ie. forest blocks) are stand age. * : reafforestation in bare-land after harvesting.

Numbers in shaded box are yearly reafforested forest blocks.

Source : Table A.1 in Appendix.

2) Agroforestry (i.e., Grazing)

It is assumed that integration of forestry with pasture farming land use system to alleviate cashflow problem due to long-term gestation period in forestry investment. Grazing should be allowed except when it might damage the trees or interfere with forestry operations (eg., tending or harvesting). The grazing times should be best detailed in the management plan, which then acts as a contractual instrument to the forester\farmer.

If grazing is causing damage or interference, the forester must be able to require the Trust Co. to withdraw the livestocks. The contractual instrument might include reference to provision of temporary fencing if necessary. If the land owner (i.e., the former farmer) uses the grazing rights on planted and unplanted portions of the woodlot area, he should be controlled by the management plan as would be the Trust Co. and subject to restrictions imposed by the Trust Co. if damage is being caused or is likely to be caused to the trees .

3) Timber Amortisation Bond

' Timber Amortisation Bond ' (ie., Investment Unit) means the securitization of forestry investment value by converting the overseas investor's invested fund into timber value by means of periodical valuation. It guarantees the free transferability of his invested fund to the third party at his discretion without jeopardising the long-term stability and consistency in forestry.

Consequently, the overseas investors can dispose of security at any time at their will. The longer the invested period approximate to the harvestable age of tree, the more return will be available at a pro-rata basis by discounting the potential returns to the overseas investor.

Thus, ' Timber Bond ' makes it possible to facilitate overseas investment by freeing up the asset value which locked up the forest property by means of securitization of long-term forestry investment irrespective of transfer or assignment of individual overseas investor's right.

4) Investment with Contingent Trade System

Under the ' Investment with contingent trade system ', NZFPT can repay the borrowings (loans) from the overseas investors (eg., Korean investors & wood processor) by supplying forest products (eg., timber) which are harvested yearly from the normal forest blocks and it brings about equivalent effect as timber export from New Zealand to Korea. In this way, it can guarantee long-term stable market outlets.

Payment may arise from clear-felling the woodlot or from thinning, if these are sold. The overseas investor & trader may have the option to take payment in timber or logs, but he must choose and expedite the Trust Co. in time for appropriate logging plans to be made.

The value of the stumpage must be established before felling commences, and notice of felling must be given to the Trust Co.

The volume harvested should be audited to avoid the potential for disputes. The terms of payment should be clearly stated, and a separate bank account could be opened to handle all receipts and payments.

Under the ' Investment with contingent trade system ' and ' The normal forest system (ie., perpetual yearly wood flow) ', it is assumed that the overseas investor is a wood processor & importer :

(i) To give... notice to the Trust Co. and to arrange for an independent valuation of the stumpage as set out in clause(ie., contractual instrument)..., prior to harvesting any stumpage in the woodlot.

(ii) To apportion the value in $ \ cubic metre of the trees to be harvested over the ensuing 12 months between the Trust Co. and the overseas investor in the ratio set out in clause ...

(iii) To measure the volume of timber harvested in cubic metres, and to make these records available for audit on a yearly basis.

(iv) To pay the land owner and overseas investor his share of harvest value arising from (ii) and (iii) above on a yearly basis following harvest.

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