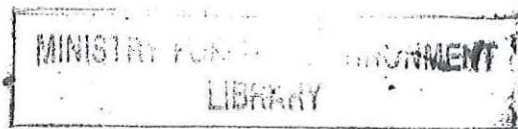


THE IMPLICATIONS OF FORESTRY DEVELOPMENT FOR
PORT NEEDS IN NORTHLAND : WHANGAROA
HARBOUR AS A POSSIBLE PORT LOCATION.



A REPORT BY THE COMMISSION FOR THE ENVIRONMENT
FOR THE MINISTER FOR THE ENVIRONMENT :

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THE IMPLICATIONS OF FORESTRY DEVELOPMENT
FOR PORT NEEDS IN NORTHLAND: WHANGAROA
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1. INTRODUCTION

2. FORESTRY DEVELOPMENT

3. WOOD UTILISATION

4. PORT REQUIREMENTS

5. PRELIMINARY PORT INVESTIGATIONS BY MWD

6. THE LOCATION OF THE TRANSPORT SYSTEM AND FORESTRY PLANTING
AREAS WITH RESPECT TO WHANGAROA HARBOUR

7. RECREATIONAL POTENTIAL OF WHANGAROA HARBOUR

8. ALTERNATIVE TRANSPORT MODES AND PORT LOCATIONS

9. CONCLUSIONS AND RECOMMENDATIONS

1. INTRODUCTION

Concern about the future of Whangaroa Harbour, Northland, particularly the possibility of its being the site of a port for the export of timber products, was expressed in a petition by the Whangaroa Progressive Association in April 1976. Further opposition to possible port development in Whangaroa Harbour has been voiced and documented in local and regional newspapers.

Below is a brief report outlining:

- a). Forestry development and resulting port needs in Northland.
- b). The patterns of development in Northland affecting the selection of sites for port and industrial development, and
- c). The environmental quality of Whangaroa Harbour and the potential affects that port development would have on the Harbour and its vicinity.

2. FORESTRY DEVELOPMENT

The major impetus for development of new port facilities in Northland derives from an upsurge in exotic afforestation by both State and private interests. It is expected that by the mid 1980's the harvesting of exotic trees will increase substantially.

Although the present area of indigenous State forests in Northland is approximately 90,000 hectares, their production over the two years 1974/75 accounted for an average of only 9,100m³ of timber per annum; non-state indigenous forests are of similar area and production level. Production of indigenous timbers is likely to fall to negligible volumes by 1995.

Contrasting with the decline in production from indigenous forests is the expected marked increase in production from exotic forests. Production from state exotic forests in Northland (including Otamatea County) is expected to increase, from the present 90,000m³ of saw logs and small wood per annum to more than 550,000m³ per annum by 1995.

The N.Z. Forest Service Regional Management Plan (under review) shows that the area in State forest planted with exotic trees is expected to triple over the next 20 years. The present area of State exotic forest is about 18,000 ha, and should increase by a further 31,000 to 36,000 ha by 1995.

As well as state forestry there is considerable private interest in exotic afforestation in Northland. Unfortunately, the lack of data about the planting and management plans of the private sector makes it difficult to accurately project future private forestry production. The figures for forest production in this report are based on New Zealand Forest Service estimates and should be regarded as indicative only.

Nevertheless, there could be a critical and rapid expansion in forest productive capacity during the 1990's.

TABLE 1

NORTHLAND (1) : PROJECTED AREA OF PLANTED EXOTIC
FORESTS - PRIVATE AND STATE

YEAR	PLANTING	CUMULATIVE TOTALS
Already Planted		27,501
1976 - 80	23,080	50,581
1981 - 85	32,315	82,896
1986 - 90	41,550	124,446
1991 - 95	50,785	175,231

Source : N.Z. Forest Service estimates November, 1976

(1). North of and including Otamatea County.

NOTE: The potential production figures shown in Tables 3A and 3B are calculated from the estimates shown in this table.

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TABLE 2

MAJOR PRODUCTIVE STATE EXOTIC FORESTS IN NORTHLAND (1):

AREAS PLANTED AND TO BE PLANTED BY 1995

FOREST	AREA PLANTED (ha)	AREA TO BE PLANTED (ha) (Land Bank)	TOTALS (ha)
Aupouri	7,313	17,627	24,940
Parengarenga	1,871	4,150	6,021
Waitangi & Opua	1,911	263	2,174
Waipoua	2,306	761	3,067
Glenbervie	4,117	1,409	5,526
Omahuta	358	503	861
TOTALS:	17,876	24,713	42,589

Source : N.Z. Forest Service, (Auckland) April, 1976

(1). North of and including Otamatea County.

The present area of exotic forests not under State ownership amounts to some 11,200 ha. Additional active private sector afforestation is being carried out by Northern Pulp Limited, Alex Harvey Industries, Carter-Holt Limited, White-Cliffs Sawmilling Company N.Z. Forest Products, and others. Also, local bodies and farmers are showing a keen interest.

.....3/.....

The current planting rate for the private sector is in the order of 3,500 ha per annum with planting being centred in the Mangonui, Hokianga and Bay of Islands counties. While there is doubt among both State and private forestry interests that these planting rates will be sustained, conservative estimates put the total private (non-farm) and local body afforestation at an additional 15,000 ha by 1985; farm forestry could add a further 7,000 ha to this additional area. Thus, upper and lower estimates for the forested area in non State forests are in the range of 32,000 to 47,000 ha in 1985 and 53,000 to 110,000 ha by 1995.

The total present planted area of 28,000 ha is projected (upper range) to reach over 82,000 ha by 1985 and over 175,000 ha by 1995 (see Table 1).

Production from present and expected forests would follow a similar pattern of rapid increase but be delayed by the 15 to 25 years that it takes trees to reach harvesting age in Northland (the age at harvesting will depend upon the purpose for which the trees are used). Because of this lag effect, production is expected to rise rather markedly around the turn of the century and in the early part of next century.

Production from State forests alone is expected to increase from the present level of about 90,000m³ to over 550,000m³ by 1995 and nearly one million m³ by the year 2000. Table 3A, which shows the projected production from both State and private forests, illustrates the rapid rises in forest production that can be expected if present planting rates are sustained. Total forest production is projected to increase from about 260,000m³ per annum over the next 4 years to three times this level, at 744,000m³ per annum over the period 1991 to 1995 and then increase three times again to 2,450,000m³ per annum over the period 2000 to 2005. If these figures seem rather spectacular, it should be remembered that the trees expected to produce by 1991 to 1995 are already in the ground.

The N.Z. Forest Service has estimated that Northland's timber requirements will not rise above 140,000m³ before the year 2000. Thus by 1980, 120,000m³ would be available for export from the region, (overseas or to other parts of New Zealand). By 1991 - 1995 600,000m³ of timber products would be available for export from the region and by 2000 to 2005 about 2,300,000m³ could be available for export. Forest products could be exported from the region in various forms, such as logs, chips, pulp or paper. Also, there is the possibility of wood based methanol production.

The locations of the exotic forests in Northland, the locations of potential processing sites and the land or water-based transport network linking these components are of major importance in the final determination of an export port site. Map 1 shows the afforested areas, major roads and rail, and harbours which have been examined for their potential suitability for port development.

TABLE 3A

NORTHLAND (1): PROJECTED ANNUAL EXOTIC FOREST PRODUCTION
(STATE AND PRIVATE - '000m³)

PERIOD	SAWLOGS (2)	SAWMILL RESIDUE (3)	AVAILABLE PULP LOGS (4)	TOTAL (2 + 4)
1976-80	190	76	76	266
-85	194	77	198	392
-90	187	75	344	531
-95	215	86	529	744
1996-				
2000	564	225	664	1 228
-05	1 623	649	827	2 450
-10	2 740	1 960	315	3 055
-15	3 809	1 523	471	4 280

(1): NORTH OF AND INCLUDING OTAMATEA COUNTY (SEE MAP 1)

(3): TAKEN AS A PERCENTAGE OF SAWLOG VOLUMES IN THE FORM
OF ARISING AND RESIDUES

TABLE 3B

NORTH OF HOKIANGA HARBOUR: PROJECTED
ANNUAL EXOTIC FOREST PRODUCTION
(STATE AND PRIVATE - '000m³)

PERIOD	SAWLOGS (2)	SAWMILL RESIDUE (3)	AVAILABLE PULP LOGS (4)	TOTAL (2 + 4)
1976-80	11	4	28	39
-85	11	4	90	101
-90	11	4	101	112
-95	37	15	228	265
1996-				
2000	228	91	278	506
-05	813	325	354	1 167
-10	909	396	162	1 171
-15	1 309	524	236	1 545

SOURCE: FOR BOTH TABLES 3A AND 3B, D. GUILD, NZ FOREST
SERVICE, SEPTEMBER 1976.

A comparison of Table 3A, which sets out total expected exotic forest production in Northland, with Table 3B, which shows the same but for the small sub-region north of Hokianga Harbour, reveals that only between 25 and 40 per cent of Northland's regional production would come from the Northern counties of Mangonui, Whangaroa and northern Hokianga (the far north sub-region on Map 1). Thus, the larger part of Northland's forest production would consistently originate south of Hokianga Harbour, an area likely to be better served by ports in Whangarei and Auckland rather than the far north. Table 3B shows the approximate quantity of forest production that could be readily exportable from the region via an outlet in the far north (the quantity would be slightly less by the amount used locally).

The strategies employed to utilize and transport the products from the present and planned forests should recognize these sub-regional divisions.

Aupouri State Forest, already planted in over 7,000 ha of pines and planned to have nearly 25,000 ha, forms a significant base from which to extend present exotic forestry resources. In terms of regional development priorities the northern counties are eminently suited to the expansion of State and private forestry to create a major export-oriented forest industry. Adequate land is available in the northern parts of Hokianga, Mangonui and Whangaroa counties. Much of this land is reverted farm land or of marginal agricultural productivity but consists of soils suited to radiata pine.

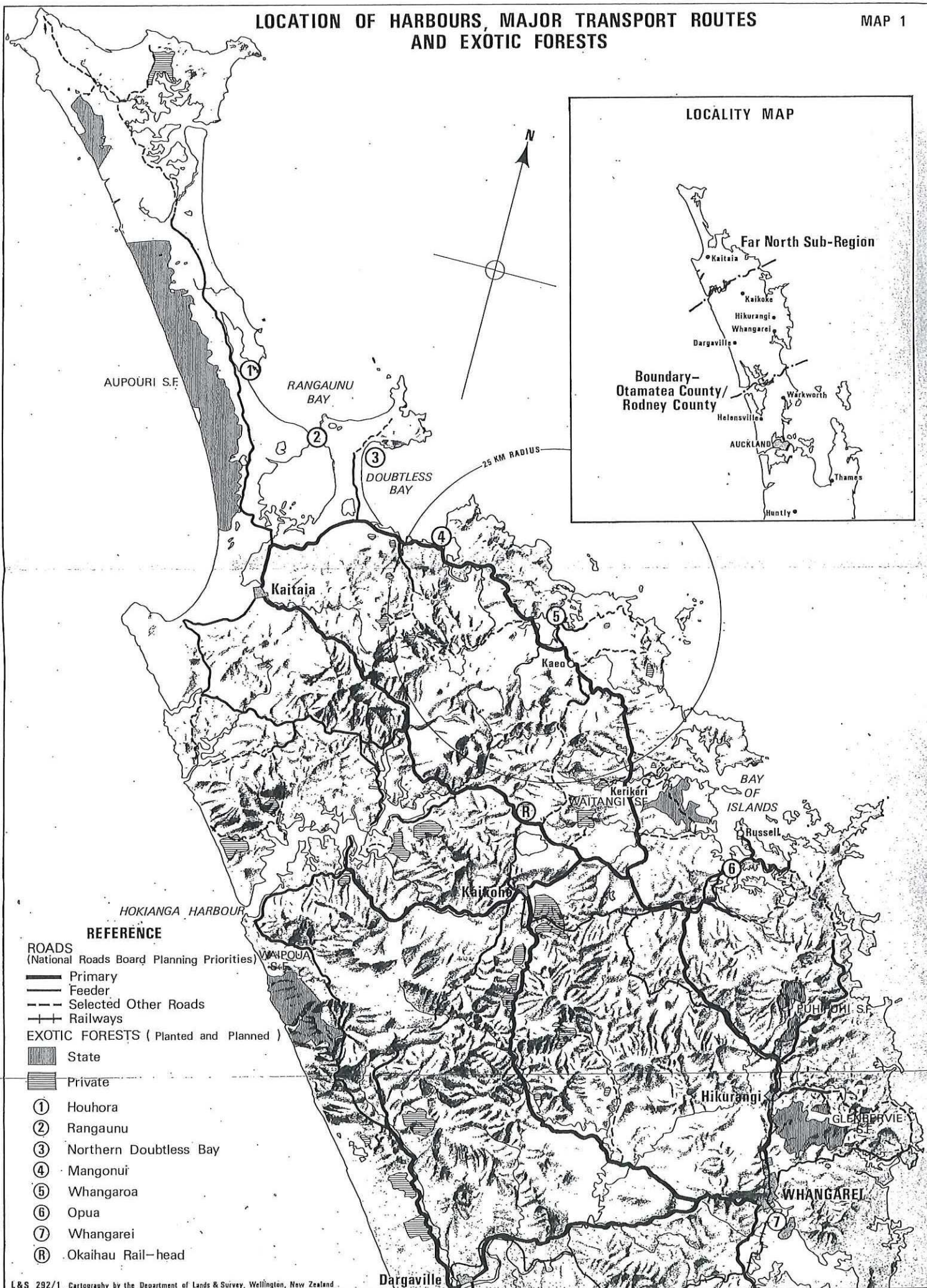
Forestry, especially in the far north, provides a valuable means of providing rural employment and a financial base for rural and small town populations. Exotic forest production, management and associated industries could be of major importance in helping to reduce rural unemployment and stem the tide of rural-urban population drift.

3. WOOD UTILISATION

The future establishment of a large-scale export-oriented integrated forest industry in Northland was accepted in general terms by the Forestry Development Conference, 1969.

LOCATION OF HARBOURS, MAJOR TRANSPORT ROUTES AND EXOTIC FORESTS

MAP 1



Northland's estimated maximum timber needs of 140,000m³ per annum by the turn of the century (N.Z. Forest Service estimate) could be supplied by an exotic forest of between 7,300 and 8,000 hectares. Private and State exotic forests together bring the present total of planted forest to 29,000 ha but no firm decisions have been made for the establishment of major plants for wood utilisation.

Forest Service planning favours the management and production of forests for saw logs with thinnings and residues suitable for pulping and reconstituted products. This type of management allows for marketing flexibility and for wider options in the development of regional wood-based industries. However, Northern Pulp Ltd. favours the planting of exotic forests for pulp-wood and plans to develop an export chip and pulp industry in the Far North. Accordingly, supporters of this possible development favour minimum tending short-rotation management regimes. If the possibility of methanol production were to be pursued it may be necessary to adopt different forest management techniques.

Aupouri State Forest is likely to comprise the productive centre for any major wood-based industry in the Far North. The Aupouri Forest at present covers 7,300 ha (excluding coastal protection forest) and it is expected that the area of productive forest will increase to 24,900 ha by 1990, although this will depend on the allocation of moneys within the Forest Service. Large-scale production is not expected from Aupouri Forest until 1985 or later.

Table 2 shows the prominence of Aupouri Forest in the Forest Service planting strategies for the future. Furthermore, over 70 per cent of productive State exotic forests in Northland will be located north of Kaitaia, some distance from Whangaroa.

The availability of wood from Aupouri, and from other sources after 1985, appears to be a major factor in the planting strategies of Northern Pulp who are at present afforesting 5,600 ha in North Hokianga and Te Hapua. Northern Pulp also plan further major expansion at Waimate North to complement their Hokianga plantings.

Recent developments in mechanical pulping have demonstrated the possibility of relatively small scale mills (requiring only 200 tonnes of wood per day) which can be based on a productive area of forest of between 8,000 and 10,000 ha within an economic haulage distance. Northern Pulp, which

plans to export chipped wood from its own forests, other private forests and residues and thinnings from State forests, intends to bring a mechanical mill into production by about 1990. At that time the export of chipped wood would be likely to be phased out. A number of localities providing sufficient water for this type of plant are available. The most likely location would be the Awanui River (Awanui Catchment near Kaitaia), Omahuta (Hokianga Harbour Catchment), and the Waitangi Catchment.

Map No. 1 shows that Aupouri Forest and the area surrounding Hokianga Harbour comprise the two principal areas for exotic forest north of Whangarei.

As yet, N.Z. Forest Service has no firm plans for the utilisation of timber from its forests or for a port outlet for wood products but has considered Whangaroa Harbour, Houhora, Rangaunu, Northern Doubtless Bay and Mangonui as possible sites for an export port. On the other hand, Northern Pulp Ltd. has carried out investigations which have prompted much of the current opposition to major port development in Whangaroa Harbour.

4. PORT REQUIREMENTS

When port development for forest product exports is eventually required in Northland, it would seem necessary for the port to be able to handle large ships drawing up to 10m and of 130-160m in length.

It is estimated that a single berth, serving ships of this size, can allow for the movement of about 150,000 to 200,000 tonnes per annum. By 1995 approximately 600,000 tonnes of forest products may be available for export. The amount of exportable surplus is likely to increase rapidly after 1995 to over 800,000 tonnes by the year 2000. Thus, the chosen site should have sufficient room to accommodate at least 4 berths. Ancillary services required to service the movement of freight on this scale would inevitably require considerable back-up space and facilities. The port might also become the preferred location for future timber processing industries and should be selected with this possibility in mind.

It is apparent that the principal criteria for selecting a new port site in Northland capable of handling a major export industry would be:

- a) the suitability for port and ancillary operations,
- b) transport linkages between the potential port and its productive hinterland,
- c) the quantity of potentially shippable products (mostly timber products) within economic transport range of the port, and
- d) the suitability of the port vicinity for the location of timber processing industries.

5. PRELIMINARY PORT INVESTIGATION BY MWD

In May 1976 MWD made preliminary investigations of seven harbours in Northland for their suitability as locations for port development for the export of timber products and concluded that either Houhora (on Aupouri Peninsula) or Mangonui would provide the most suitable locations with the possibility of using Rangaunu for barge traffic.

The report concluded that Whangaroa, although indisputably the best natural harbour in Northland, is too far removed from the present and planned future centres of forest production to make it suitable as an outlet for forest products. The distance from potential production areas to Whangaroa Harbour would make land transport costs too high (see Map 1). Although the possibility of local kaolin clay being exported through Whangaroa was explored, port requirements would be on a small scale compared with those for large-scale forest exports. Opuia in the Bay of Islands would be similarly unsuitable.

Other factors besides those considered by MWD should be investigated before commitment is given for port development.

6. THE LOCATION OF THE TRANSPORT SYSTEM AND FORESTRY PLANTING AREAS WITH RESPECT TO WHANGAROA HARBOUR

a) Forestry

Map No. 2 shows that Whangaroa, some 70 km by road from the centre of Aupouri forest and 60 km from the centre of the planned Hokianga forest area, is poorly sited for a port outlet for forest products; being too far distant from the major potential forestry production areas. It is estimated that there are only 500 ha of exotic trees within 40km of Whangaroa. Also NZFS considers this area of low priority for future planting.

b) Roading

The existing roads between the Aupouri and Hokianga areas and Whangaroa are presently inadequate to handle sustained logging traffic. Northland's main roads, all classified as Class II roads, would require substantial and expensive upgrading to accommodate the sustained heavy traffic that would be associated with forestry production. National Roads Board priorities favour a continuing programme of upgrading S.H. 12 (the main north/south route through Northland), S.H. 10 (the "east coast route") is also being gradually upgraded in acknowledgment of rapidly increasing automobile traffic associated with the recreational popularity

WHANGAROA HARBOUR AND ADJACENT COASTAL RESORTS

MAP 2

REFERENCE



Coastal Subdivisions



State Highway 1



State Highway 10
(coastal highway)

N



SEE MAP 3



RANGAUNU
BAY

DOUBTLESS
BAY

Mangonui

Kaeo

KAITAIA

BAY OF
ISLANDS

Kerikeri

of Northland. There is at present no adequate direct road link from the Hokianga area and Kaikohe to Whangaroa capable of handling industrial road-traffic. Moreover, the existing roads would be extremely costly to upgrade. For these reasons there would be long-term additional, infrastructural and operation costs associated with the transport of forest products to Whangaroa. Transport costs to a closer port (nearer to Aupouri) would be considerably less.

c) Conflict with Recreational Traffic

S.H. 10 (the "east coast route") is an important tourist and recreation route which is likely to become more and more important for this purpose as the population of Auckland and North Auckland increases, incomes rise, and the coastal recreational areas are further developed.

A Northland Regional Planning Authority survey revealed a 35 per cent increase in holiday traffic over the period 1972 to 1975 and that over 250,000 people travelled into Northland by car in the four-week Christmas period in 1975.

The scale and form of Highway 10 (the "east coast route") and the type of traffic using this route should be kept in harmony with the recreational nature of the whole coastal area. Logging and other heavy traffic would conflict with tourist and recreation traffic.

d) Population

The provisional count from the Census of Population of March 1976 shows a rapid population increase in Northland's East Coast during the past five years. There is increasing demand for subdividable land along the east coast from Whangarei to Houhora. The population of Paihia and Opua in the Bay of Islands has increased some 37% and 40% respectively. Kerikeri and Russell also show rapid population increases. These increases are indicative of an expanding demand for holiday and retirement housing along the east coast in areas readily accessible by road. Whangaroa Harbour is located about midway along the coast between the southern and northern limits of these popular coastal resorts stretching north along the coast from the Bay of Islands.

7. RECREATIONAL POTENTIAL OF WHANGAROA HARBOUR

Whangaroa offers a recreational resource in Northland of rare potential. Despite the harbour's close proximity to holiday areas to the north (e.g. Doubtless Bay/Mangonui) and the south (Bay of Islands), Whangaroa is at present largely unaffected by holiday subdivisions and other settlements. Existing settlement is confined to the inner extremities of the harbour at Totara Point, Waitaruke and Whangaroa township. Much of the steep hill country enclosing the harbour is covered by regenerating bush, a substantial area of which is protected by a scenic reserve surrounding Pekapeka Bay (see Map 3). Also, there are large areas of Maori land on the harbour and the historical subdivision pattern has kept the number of small subdivided parcels to a minimum. Hence, the harbour remains largely in its natural state. Spectacular rock formations in the form of bluffs and rock pillars add to the scenic quality of Whangaroa Harbour (see photos).

Any large scale port development would have a significant visual impact on the harbour. Also, noise could present problems because Whangaroa's topography may act as a natural sound shell, accentuating noise emanating from port activities.

The harbour is already used by a large and increasing number of yachts and launches. Also the wharf is used for small coastal and fishing vessels.

The unspoilt and tranquil nature of Whangaroa Harbour gives it a quality which will probably become more and more appreciated as Northland's coastal areas elsewhere become 'developed'. Considerable recreational pressure can be expected on the Harbour in the future but careful management and development would allow for these needs to be met.

Unspoilt coastal areas are of value to conservations and housing and recreation developers alike. The Department of Lands and Survey is presently preparing a survey on potential coastal reserves in Whangaroa County; the report is due for completion by March, 1977. Lack of foresight on the part of local authorities in allowing subdivisions of coastal land, is causing some concern.



WHANGAROA HARBOUR AND ENVIRONS

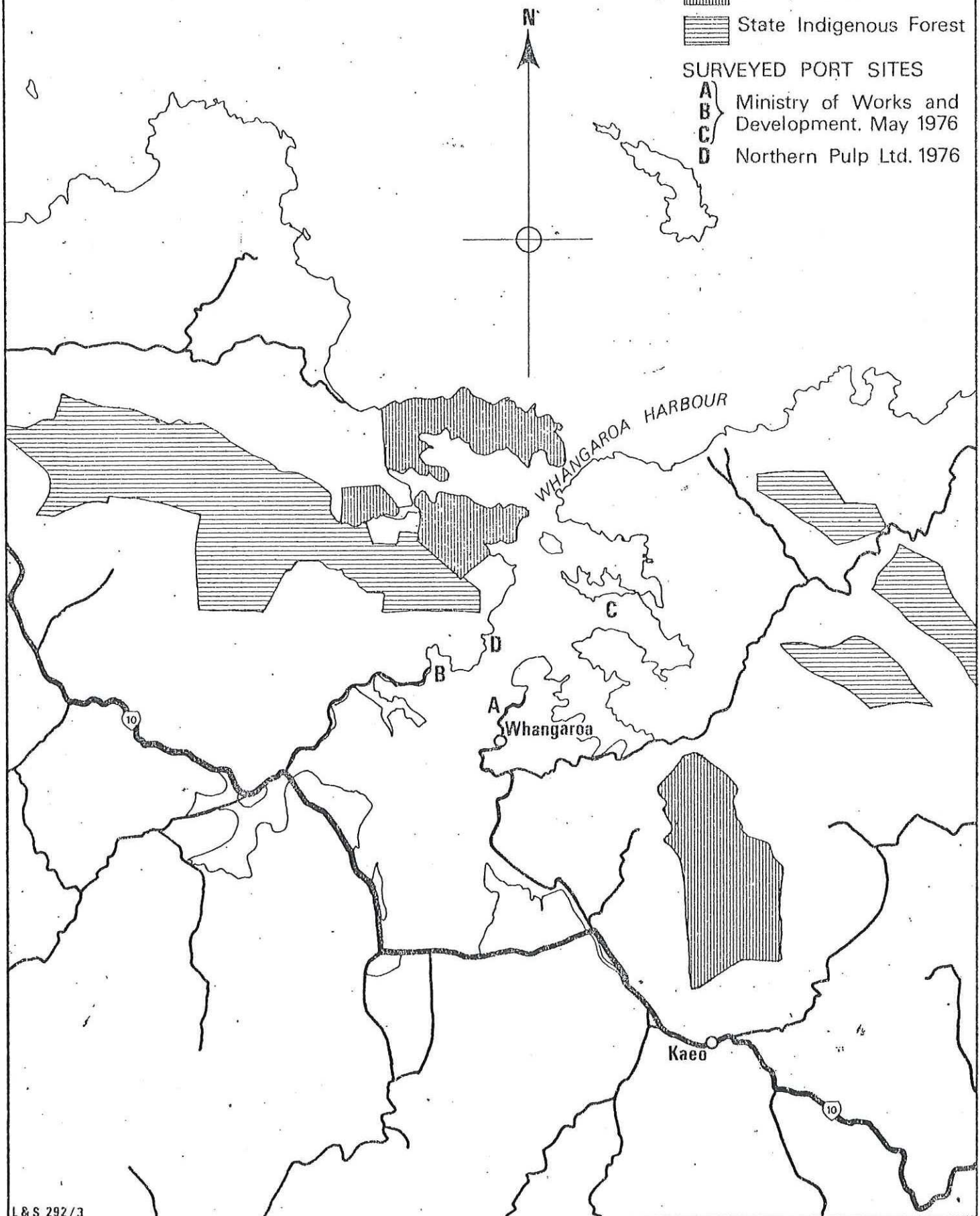
MAP 3

REFERENCE

-  Scenic Reserve
-  State Indigenous Forest

SURVEYED PORT SITES

- A } Ministry of Works and Development, May 1976
- B }
- C }
- D } Northern Pulp Ltd. 1976



8. ALTERNATIVE TRANSPORT PATTERNS AND PORT LOCATIONS

The transport requirements of moving logs from present and proposed forests to processing or export nodes would present major difficulties for the road transport network but perhaps could be met by coastal barging or rail systems. The rail head at Okaihau is less than 15 km from the head of Hokianga Harbour. This rail link passes through Kaikohe to Whangarei. The railway line may need upgrading but if used in conjunction with barge traffic on the Hokianga Harbour might provide an adequate transport and export route for forestry products from the Hokianga area.

The indented coastline of Northland has long been used for barging operations and some barging still occurs. Clearly, barging operations, if practicable, could significantly alter transport planning for forestry and other potential export-orientated industries in Northland.

In terms of proximity to major production forests in the far North, Houhora, Rangaunu and Doubtless Bay comprises the most desirable locations for port development. Mangonui although only marginally further from Aupouri State Forest, is situated on State Highway 10 and hence conflicts between tourist and industrial traffic could arise. Furthermore, Mangonui itself has considerable scenic, recreational and tourist potential.

The final choice of a major export port site should be based on the location of potentially exportable products, a full assessment of the cost of port development, transport costs for moving products to the port and comparisons with other land uses and transport modes in the vicinity of the port and along routes leading to and from it. Furthermore, the growing value to New Zealand of Northland's beautiful coastline should be given due consideration.

9. CONCLUSIONS

- a). The major concern about port development at Whangaroa arises from proposals for the export of exotic forest products by Northern Pulp Ltd.
- b). If forest products are to be exported from the far north, a major port could be required to handle forest production expected by the late 1980's.
- c). Present and planned areas of exotic forest are some distance from Whangaroa. Despite large-scale private afforestation throughout Northland, the centre of forestry production, north of Hokianga Harbour, is likely to remain at Aupouri State Forest. Areas of exotic forest to the south of Hokianga Harbour could, perhaps be served by rail to Whangarei.

- d). Existing road links between Whangaroa and exotic production forests are either inadequate to handle sustained heavy logging traffic or are likely to be popular tourist and recreational routes.
- e). Different transport modes for the movement of forest products, especially from the Hokianga area, have not been fully examined and could well include barging and rail movement on a large scale.
- f). Whangaroa Harbour has valuable attributes as a potential major recreation area and is remarkably unaffected by housing and other development. In a coastal region of increasing popularity the harbour can be expected to gain in value as a natural resource suitable for many recreational and tourist activities.
- g). A number of alternative potential port sites exist to the north of Whangaroa which may prove, in the long-term, more economic to develop and operate, and at the same time allow for the diversion of industrial development away from a recreational area of national importance.
- h). Before a decision about the development of an export port for the far north is made, it is important that detailed investigations into transport, water and other locational requirements of a major integrated forest industry in Northland be carried out.
- i). Appropriate investigations to meet the suggestions contained in conclusion (h) would include:
 - (i). Surveys of resources and planning strategies.
 - (ii). A survey of the availability and feasibility of coastal transport systems and potential port sites.
 - (iii). A survey of potential forest-based industries suitable for Northland.
 - (iv). A survey of land-based transport facilities and requirements.
 - (v). A survey of recreational demands and housing development in Northland.

Commission for the Environment.

Wellington, November, 1976.