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THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

REPORT
relating to the proposed
DEVELOPMENT OF THE
PORT OF DARWIN
Northern Territory

(TWENTY-FIRST REPORT OF 1970)

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

DEVELOPMENT OF PORT OF DARWIN
NORTHERN TERRITORY

R E P O R T

By resolution on 2 September 1970, the Senate and the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report to the Parliament proposals for the development of the Port of Darwin in the Northern Territory.

The Committee have the honour to report as follows:

THE REFERENCE

1. The proposals referred to the Committee involve the construction of
 - an island land backed general cargo wharf, a transit shed and office and amenities accommodation located at Fort Hill West and connected to existing roads by an access causeway;
 - a cargo handling shed on Kitchener Drive;
 - a land backed protected basin and berths for small ships in Frances Bay with a dredged access channel and associated roadworks;
 - a bulk cargo jetty head, approach causeway and ore handling plant at Quarantine Island in East Arm and associated road and rail works.

2. The proposed works are the basis of a major replanning of the port facilities at Darwin to overcome deficiencies in the current arrangements. The first two items are designed to augment general cargo handling resources in the Stokes Hill/Fort Hill area. The third item is the first step towards the establishment of a small ships facility in Frances Bay and the fourth is the basic requirement of a bulk loading facility/industrial complex in the East Arm area.

3. The estimated cost of the work referred to the Committee was \$19.03 million

THE COMMITTEE'S INVESTIGATION

4. The Committee received written statements and drawings submitted on behalf of an interdepartmental Steering Committee concerned with the proposed development and from the Department of Works. We held public hearings in Darwin at which evidence was taken from the Chairman and other officers concerned with the Steering Committee, from representatives of the Department of Works and from witnesses making submissions on behalf of shipping and other interested organizations.

5. The Committee inspected the Port of Darwin including the existing facilities in the Stokes Hill/Fort Hill area, Frances Bay and East Arm.

EXISTING FACILITIES

6. Darwin Harbour Darwin is situated on a large coastal inlet whose shores are generally low lying, thickly covered with mangrove and fronted by wide mud flats. The inlet has three major radial arms - East Arm, formed by the mouth of the Elizabeth River, Middle Arm formed by the mouth of the Blackmore River and West Arm which forms the outlet for a number of small creeks. A natural deep water channel at the mouth of the inlet opens towards the north-west into Beagle Gulf.

7. Darwin is the main port serving the Northern Territory and it handles a wide range of general cargo as well as iron ore and other bulk cargoes. The port also serves an increasing number of fishing vessels, warships and oil rig service vessels and caters for interstate and overseas passenger vessels. Apart from a small amount of cargo handled by barge at Frances Bay, cargo is handled through the present port area over four wharves - Stokes Hill, Fort Hill, the Iron ore and Boom wharves.

8. Stokes Hill Wharf This wharf is 700 ft long and is connected to the shore by a 1,100 ft long curved approach along which a single railway track connects with the Commonwealth Railways system. Two sheds on the wharf provide transit storage for cargoes and incorporate office accommodation and waterside workers' amenities. The wharf was last extended in 1965.

9. The minimum depth of water alongside is 32 ft on the outer face of berth and 15 ft on the inner face. The wharf is in sound condition and is maintained in full use. The outer wharf face is used by general cargo and passenger vessels and visiting warships and the inner face by fishing boats, locally based naval patrol craft and other small vessels including general cargo carriers.

10. Fort Hill Wharf This wharf has a T-head 350 ft long with a 500 ft approach. Both the wharf and the approach have a concrete deck supported on steel piles, most of which are filled with concrete, but some with sand. The minimum depth of water alongside varies from 20 ft to 24 ft. Fort Hill wharf has been in service for a number of years and protective measures have been taken on a number of occasions to extend its life which is limited by the progressive corrosion of the piles.

11. Currently the wharf is used for bulk cargoes including petroleum but not iron ore. It is also used for general cargo.

12. Iron Ore Wharf This wharf, which was completed in 1967 and is in good condition, is 460 ft long and consists of a concrete deck supported on concrete filled steel piles. It carries a travelling shiploader. The minimum depth alongside is 38 ft, allowing ships of up to 45,000 tons to use the berth.

13. It is used for the export of iron ore and for handling petroleum products.

14. Boom Wharf The 250 ft long Boom Wharf provides berthage for oil rig service vessels, miscellaneous small coastal trading ships and fishing vessels.

15. Shore-based Facilities The port's shore-based facilities include

- a 200 ft by 200 ft container shed and associated hardstanding, built by the Port Authority in 1967 and situated in Kitchener Drive;
- bulk handling facilities for iron ore, cement and bitumen feedstock in the Fort Hill area;
- the Boom Shed, now used for storing bulk materials such as mineral concentrates, in the Fort Hill area;
- a temporary facility for handling sorghum, located near the Boom Shed.

16. Current Usage The Committee were informed that the Port of Darwin has seen a great increase in cargo movement in recent years. Total inwards cargo has doubled over the last five years from about 200,000 tons in 1965 to about 400,000 tons. About 65% of inward cargo is petroleum products. Artificial fertilizer and cement, handled as bulk commodities,

together make up a further 10%. The remaining 25% is general cargo, mainly foodstuffs, building materials and motor vehicles, and is virtually all landed on Stokes Hill Wharf.

17. The same five year period has also seen a dramatic increase in outwards bulk cargo, from a negligible level in 1965 to over 1 million tons in 1970. It is almost entirely iron ore, with small quantities of other mining products.

18. The port also exports small quantities of general cargo including frozen meat and prawns. Tonnages involved have remained stable over the last five years at about 15,000 tons per annum.

CURRENT OPERATIONAL DIFFICULTIES

19. The Port of Darwin is at present suffering from severe congestion and cargo handling difficulties. It is our belief that these problems, which are now briefly described, will be compounded by technological changes in cargo handling and by recent rapid increases in demand for bulk cargo handling and small ship facilities.

20. General Cargo Operations Virtually all general cargo is handled over Stokes Hill Wharf and congestion there is severe. Discharge rates are only 50%-60% of those achieved in many other Australian ports. We were told that inadequate working areas on the wharf and in the transit sheds and insufficient space for traffic circulation inhibit effective stevedoring operations. The congestion is compounded by vehicles attending small craft using the rear face of the wharf for bunkering, minor repairs and loading and discharging of cargoes.

21. It was suggested to the Committee that if serious delay and congestion are to be avoided, the utilisation of a single berth should not exceed 40%, i.e. the berth should be occupied for not more than 150 days per year. The corresponding figures for two and three berth ports are 50% (370 berth days) and 60% (660 berth days) respectively.

22. Utilisation of the two berths on the outer face of Stokes Hill Wharf is now of the order of 85% and ships are frequently forced to wait for a berth despite the practice of using the 700 ft of berthing space for the simultaneous berthing of two vessels.

23. Limited Port Access Access to the port is provided by road and rail. Only one road is available for use by commercial vehicles and this is crossed at grade by a railway line carrying iron ore trains. Consequently, road traffic is frequently held up. The rail configuration is limited by the available space resulting in excessive train turn around times. Because of loading restrictions only light locomotives may use the Stokes Hill Wharf.

24. Export of Iron Ore The Committee were informed that Frances-Creek Iron Mining Corporation Pty Ltd has recently signed an extension contract for the export of 4.7 million tons of iron ore fines and soon hopes to sign further contracts. The restricted space available for stockpiling in the present port area makes it impossible to stack fines separately from lump ore and difficult and inefficient methods are being adopted in order to handle the two products as separate commodities.

25. Furthermore, as the handling of iron ore is a dusty operation and as the iron ore wharf and stockpile area are in close proximity to the city area of Darwin, there has been considerable justifiable complaint about the dust nuisance when ships are loading.

FUTURE PORT REQUIREMENTS

26. The highly unsatisfactory situation in the port is confidently expected to be worsened by further industrial development in the Territory and by the impact of technological changes in shipping. The major new or proposed industrial developments and their probable effect on cargoes through Darwin are -

27. Iron Ore Exports of iron ore from the Frances Creek deposits commenced in 1967. The deposit is being developed by Frances-Creek Iron Mining Corporation Pty Ltd which has contracted to export 10 million tons of lump ore and fines to Japan. In 1969/70, 860,000 tons were shipped. Recent investigations indicate that ore reserves in the area are at least 25 to 30 million tons. We noted that if the company can increase its annual rate of shipment, the guaranteed loading rate and accept bulk carrier vessels up to 60,000 tons, there is good prospect of it contracting to supply a further 10 million tons of ore. These conditions cannot be met with the existing port facility.

28. In 1968, Morgan Mining and Industrial Co. Ltd commenced exporting lump ore from their Mount Bunday deposits. Reserves amount to about 1.5 million tons. Ore is being shipped at about 300,000 tons per annum under contracts for the supply of 1.4 million tons of ore. Delivery is to be completed in 1974.

29. A third company is considering exploiting low grade deposits at Daly River which would probably require beneficiating before export.

30. Other Minerals The Committee were told of a number of other minerals deposits currently being developed or investigated which could contribute to exports through the Port of Darwin. Possible commodities for export include blister copper, various mineral concentrates, barites, uranium oxide concentrate etc. Mining operations are also likely to cause a substantial boost in imports.

31. Off-Shore Petroleum Exploration Two companies are engaged in off-shore petroleum exploration and use Darwin as a base for operations thus stimulating port traffic. Developments of their operations or discoveries could exert further pressures on the port facilities.

32. Evidence given to the Committee on behalf of A.C.F. and Shirleys Fertilizers Ltd, a supplier of fertilizer to the Territory, indicated that the firm would wish to establish a plant at Darwin when the local demand is about 25,000 tons per annum. This stage is expected to be reached in another three years. Initially, such a plant would require the annual importation of 17,000 tons of rock phosphate and 8,000 tons of sulphuric acid.

33. It was stated that because of the absence of available land in the present port area, the establishment of a fertilizer plant would only be feasible if new port facilities were constructed elsewhere.

34. Other Likely Developments At the public hearings two cement manufacturing companies indicated their interest in establishing plant in Darwin, involving possible use of the proposed East Arm port facilities and industrial area.

35. Forecasts of the future demand for electricity indicate that a new power station will be needed for Darwin within ten years and East Arm is thought to be the most suitable site. Planning at this stage envisages an oil burning station which would require berthing facilities in the area for tankers.

36. Fishing Industry The prawning industry in the north is still in the establishment stage. We noted the forecast that it will be 4/5 years before a reliable estimate can be made of the nature and extent of the prawn resources which can be exploited from Darwin. Nevertheless, on the basis of catches to date, a substantial industry seems assured. In 1968/69 the export of prawns

from the Northern Territory was 0.61 million lbs and in 1969/70 it had grown to 4.6 million lb. The latter figure represents 43% of Australian exports of prawns during that period.

37. The prawning fleet now comprises about 50 vessels but all companies are committed to firm plans for expansion of their fleets. The Committee were told that following investigation, it has been estimated that by 1973, 120 vessels will be operating out of Darwin.

38. Clearly, the development of prawning from Darwin is severely hampered by congestion in the port. There are no suitable facilities specifically for small craft and fishing vessels have to use the rear of Stokes Hill Wharf. This results in the rear apron becoming congested, interfering with the handling of general cargo.

39. Changes in Shipping Technology The Australian National Line recently introduced a container/ore vessel on the Darwin-East Coast service. This vessel carries much of its general cargo in unit form, including containers, and loads with manganese ore from Groote Eylandt for its return journey southward. The efficiency of the vessel depends largely on quick turn-around times and the extent to which it is possible for berths to be land-backed to provide adequate storage areas for unit load cargoes. On this basis, the use of Stokes Hill Wharf for container vessels is regarded as operationally unsatisfactory.

40. A second development in shipping services to Darwin is the intention of the Western Australian State Shipping Service, which operates the Darwin-West Coast service, to acquire LASH (lighter-aboard-ship) type vessels. These vessels do not require berthage at out-ports but discharge their cargo in loaded lighters.

41. We noted that the Service is having detailed designs prepared for a LASH vessel with a view to calling tenders for construction later this year. There is thus good reason to expect that LASH vessels will be introduced to Darwin by about the middle of 1973. There will, however, not be complete certainty on the proposal until about the end of this year. Frances Bay is regarded as the likely location of the separate port facilities to harbour and unload the lighters from LASH vessels.

42. Forecast Cargo Movements Evidence was given that on the basis of known and forecast developments within the private sector in the sphere of influence of the Port of Darwin there is every reason to expect that the recent high growth rate in cargo movements will continue. General cargo imports are expected to double from their present level of about 100,000 tons per annum over the next seven years and to reach 300,000 tons per annum by 1980. Fertilizer imports are expected to double to 26,000 tons per annum in the next five years and cement imports to double to 60,000 tons per annum over the next ten years.

43. The level of iron ore exports will depend on the facilities available. The present facility restricts exports to about 1.2 million tons per annum. The development now proposed will enable the main exporter to boost its export rate to two million tons per annum, and the facility will be capable of expansion to meet the requirements of other users.

44. It was also forecast that by 1980, assuming that cargo movements are not limited by the port facilities, inward cargo will reach about one million tons per annum and outward cargo about two million tons per annum.

DEVELOPMENT PROPOSALS

45. Engagement of Consultants In July 1968, the firm of Maunsell and Partners was commissioned to undertake a feasibility study on the development

of new port and harbour facilities in the Darwin region. The consultants submitted a final report in January 1969. Basically, the conclusions of the report were

- the present port facilities are incapable of handling the present demand, and even less suitable as a base for the expansion which is now pressing;
- the present Port of Darwin should be developed for container, unitised and general cargo;
- the Frances Bay foreshore of Darwin should be developed for fishing vessels and small craft;
- a new bulk port and industrial area should be established at East Arm.

46. Current Proposals After a comprehensive examination of the consultants' report, the Government approved in principle the development of the port along the lines recommended and established a Steering Committee to translate the broad proposals into a specific plan of development.

47. The Steering Committee's investigations included an assessment of user requirements and detailed examination of a number of alternative development proposals which required site investigations and technical studies. The proposals submitted to the Committee follow the general concept put forward by the consultants. We noted that some changes in detail have been made to the consultants' proposals, some of which are the result of further site investigation and design work undertaken by the Department of Works. Others are a consequence of changed user requirements.

THE PROPOSED WORKS

48. General Cargo Facility - Fort Hill West The reference includes a new general cargo berth to be constructed west of the existing iron ore wharf. The berth is to be 600 ft long, land-backed by about 5½ acres of reclamation and linked with Kitchener Drive by a causeway carrying a three-lane roadway. Two separately located new sheds are proposed in association with this berth. One of these is to be built on the wharf, providing space for general cargo transit storage as well as amenities for waterside workers and Port Authority's staff and the other in Kitchener Drive adjacent to the shed leased to the Australian National Line for use as a container terminal. The new shed in Kitchener Drive would initially be used for both container and general cargo.

49. Small Ships Facility - Frances Bay The small ships facility proposed for Frances Bay is to have land backing for administrative offices and port users' facilities and would consist of two finger piers protected by a breakwater which will also provide berthing space. The 1,150 ft of berthage including 230 ft of dolphin space proposed would be supplemented by existing berthage on the inner face of Stokes Hill Wharf. This facility will service up to 120 prawning vessels as well as wet fish vessels, naval patrol and other Government craft but not, of course, all at the same time.

50. The facilities are designed for future extension if required. Initially, this could be done either by lengthening the central pier or by extending the southern wharf along the breakwater. Beyond that, extension would involve the construction of additional piers. The plan for Frances Bay allows for extension to provide for LASH vessels.

51. Access from the shore would be by a new road which would run from the present port area along Frances Bay to the facility and connect with the Stuart Highway via the Dinah Beach Road which would be upgraded.

52. East Arm - Bulk Cargo Port A new bulk port is proposed at East Arm which would provide a berth at South Shell Island connected to Quarantine Island by a causeway. The natural deepwater at this berth would enable vessels of up to 100,000 tons to berth, compared with the present maximum capacity of 45,000 tons at Fort Hill. A stockpile area with mechanical handling facilities would be located on Quarantine Island and would be connected to the berth by a conveyor system on the causeway.

53. The bulk port would be equipped with a new 2,000 tons per hour ship-loader to double the present capacity and, initially, with a new reclaimer unit of 1,000 tons per hour capacity. After the East Arm facilities are brought into operation the stacker/reclaimer at Fort Hill is to be reassembled at East Arm to boost the reclaimer capacity to 2,000 tons per hour.

54. Access to the new bulk port is to be provided by upgrading the road which now runs from the Stuart Highway at Berrimah to the quarantine station and by a new rail link from Knuckeyes Lagoon to East Arm. It is proposed that there will be grade separation between the new railway line and the Stuart Highway at Berrimah.

55. Undeveloped land between the port and the highway which is to be traversed by the road and rail links is planned to be used for a port industrial complex.

56. Committee's Conclusions It is quite evident that the existing facilities of the Port of Darwin are suffering severely from congestion and there are considerable cargo handling difficulties. Likewise it is equally obvious that the geographical limitations of the main port area make it unsuitable for development to meet all the long term port needs of Darwin.

57. The Committee concur in the view that the proposal to retain the general cargo facility in the Stokes Hill/Fort Hill area in proximity to the city area is a functional and economic use of existing resources. We furthermore agree that the establishment of a small ships' facility in Frances Bay and of a bulk loading facility at East Arm is consistent with the current and future port facility requirements of the Darwin area.

CONSTRUCTION

58. General Cargo Facility The new berth is to be located on the western side of Fort Hill adjacent to a natural channel. It will have a road connection from Kitchener Drive and Snake Alley and an access causeway. It will be aligned, having regard to tidal currents and be capable of future duplication by the construction of another berth immediately to the west.

59. The new berth will have a 600 ft by 50 ft wharf and 410 ft depth of reclaimed land backing. The berth face and approaches are to be dredged to provide 32 ft of water at low tide. It will be designed to allow mechanical handling of 20-ton containers and the eventual installation of a container handling crane.

60. A transit shed 270 ft by 75 ft with a clear internal height of 26 ft is proposed for the wharf. Offices and amenities facilities will be provided adjacent.

61. The wharf is to be a cathodically protected steel piled structure with a reinforced concrete deck. It will support a fender system on the front face and a sheet pile retaining wall on the rear face. Land backing will be obtained by placing dredged sand within embankments of quarried rock. The access causeway will be constructed in quarried rock and armoured against wave action by a one stone layer. The 35 ft pavement on the causeway and circulatory roads and hard standing on the wharf will be paved.

62. The transit shed, offices and amenities will be steel framed structures covered with galvanised sheeting. The walls of change rooms and toilet blocks will be in masonry. The offices and mess rooms are to be air conditioned.

63. The container handling shed is to be a 200 ft by 200 ft structure with a clear internal height of 26 ft. It is to be built south of Kitchener Drive on land reclaimed by the Northern Territory Port Authority. It will be a steel framed structure covered with galvanised steel decking and with a flexible pavement floor. Access roads and external hard standing will be paved and it will be enclosed with a man-proof fence.

64. Small Ships Facility, Frances Bay This facility is to be located on the western side of Frances Bay, north of existing development and will extend into the Bay to an existing tidal current channel. It is to consist of a 700 ft square protected basin dredged to give 14 ft of water at low tide at the berths. The channel is to be widened and deepened to provide 9 ft of water at low tide. The basin is to have a 540 ft by 400 ft land backing and two breakwaters to protect the two finger piers and wharf to be constructed in the basin.

65. Office and amenities buildings and a two-lane access road and hard standing areas are to be provided on the reclaimed land. The buildings are to be in brickwork with galvanised steel roof decks. Offices and mess rooms are to be air conditioned.

66. The wharf and finger piers are to be cathodically protected steel pile structures with reinforced concrete decks. A simple timber faced pile fender system is proposed. Breakwaters and reclaim embankments will consist of a core of rock armoured against wave action by a one stone layer. The land backing is to be reclaimed with dredged sand.

67. A 24 ft roadway will connect to existing roads at the southern end and is to be carried northward over a causeway to link with Dinah Beach Road. That road is to be reconstructed as a 24 ft pavement on the present alignment. The work also includes a minor realignment of the railway line where it passes the western extremity of the facility.

68. East Arm Bulk Cargo Facility - Site and Planning The new facility is to be located on the East Arm of Darwin Harbour off Quarantine Island which forms the tip of a peninsula south of Berrimah.

69. The installation is to comprise

- a 610 ft by 56 ft jetty head and two mooring dolphins;
- a 460 ft by 12 ft wide approach bridge;
- a 1,600 ft conveyor trestle;
- a 7,000 ft causeway 35 ft 6 in. wide for a conveyor and an access roadway, including 400 ft and 300 ft bridges, the roadway to have passing bays at 1,000 ft intervals;
- a stockpile area for 300,000 tons of iron ore which would be capable of future extension as required;
- a reconstructed 24 ft access road from the Stuart Highway;
- buildings, roads and services on Quarantine Island;
- a spur railway line;
- a mechanical handling system comprising a two car dump pit, a 400 ton surge hopper, transfer towers, conveyor belts and apron feeders, the existing stacker reclaimer, a new reclaimer of 1,000 tons per hour capacity and a ship loader of 2,000 tons per hour capacity.

70. The jetty head is to be designed to withstand the berthing forces of a 100,000 ton D.W.T. ore carrier and the centre section will be strengthened for the handling of selected industrial cargoes.

71. The plan for the mechanical handling system includes the re-use of the stacker reclaimer from Fort Hill and the provision of a separate bucket wheel reclaimer operating on the same track.

72. East Arm Bulk Cargo Facility - Construction The wharf head is to consist of cathodically protected steel piled structures with reinforced concrete decks. The various sections will be connected by steel bridges decked with timber. The seaward faces of the berthing structures are to be protected by a fendering system.

73. The conveyor and approach causeway will be constructed with material quarried from Quarantine Island. Run of quarry material will be used in the core of the embankment which will be protected by a single layer of armour stone. The approach road will have a sealed pavement, lighting and guard rails.

74. The quarry site will be graded to form the stockpile area and the bed for the reclaimer tracks. Access roads, hard standing areas and drainage will also be provided.

75. On-shore offices and amenities buildings will be of brick construction with galvanised steel deck roofs and stores buildings, workshops and off-shore accommodation will be of steel frame construction covered with metal sheeting. Offices and mess rooms are to be air conditioned. Electricity and water will be supplied and a sewage disposal system will be installed.

76. At the unloading point, a covered dump pit for unloading two rail wagons simultaneously will be constructed underground in reinforced concrete. The bins in the pit will be unloaded by apron feeders delivering ore to a collecting belt and then to an inclined conveyor belt partly enclosed in a tunnel which in turn will deliver ore to an elevated steel surge bin. The bin will be at one end of the 1,000 ft long stacking area. Ore will be transferred from the bin to a 42 in. ground belt running the length of the stacking area and serving the stacker reclaimers. These machines will travel the length of the stacking area on rails.

77. Reclaimed ore will be transferred on the ground belt to a conveyor on the causeway which will then deliver it to a transfer tower at the end of the wharf. A travelling shiploader of 2,000 tons per hour capacity and with an outreach capable of serving vessels up to 100,000 tons D.W.T. will take ore from a conveyor on towers running the length of the wharf and place it as required in the bulk carrier at the berth.

78. The road between Berrimah and the quarantine station will be reconstructed with minor changes in alignment to provide a 24 ft pavement. An overpass is to be constructed on the Stuart Highway involving some deviation of this road and the railway.

79. An 11 kV overhead power line will follow the access road. A new 12 in. trunk water main will be provided to service the development.

80. Rail access to East Arm is to be by a single track spur line about 5 miles long running from the main North Australian Railway at Knuckey's Lagoon to the stockpile area on Quarantine Island. A triangular connection is proposed at Knuckey's Lagoon to facilitate train movement.

81. Committee's Recommendation Subject to the recommendations which follow, the Committee recommend the construction of the work in this reference.

ESTIMATE OF COST

82. The estimated cost of the work referred to the Committee was \$19.03 million as follows:

	\$
- General cargo berth, Fort Hill West	3,875,000
- Container handling shed	495,000
- Small ships facility, Frances Bay	4,060,000
- Bulk cargo facility, East Arm	10,600,000
	<u>19,030,000</u>

PROGRAMME

83. The Committee were told that after an approval to proceed is given, it is proposed to commit the project to construction in stages to achieve a total completion of the work by mid-1973.

OTHER OBSERVATIONS

84. Quarantine Station The establishment of the bulk loading facility and the associated industrial development at East Arm will encroach on the area now occupied by the quarantine station, necessitating its eventual relocation. The present work is not likely to interfere with the station as it will be fenced off to ensure its isolation and separation from the initial port development works. The station will, however, need to be relocated before secondary development occurs.

85. It is our view that the proposal for the removal of the quarantine station and its cost might well have been included as part of this reference.

It may be debatable whether the cost of the relocation is properly attributable to the cost of the port works but undoubtedly it is a natural and inevitable consequence of it.

86. In that light, we believe that the Department of Health should take steps to expedite the choice of a site for the new quarantine station and take early action for the design and construction of the new facility. This action is essential so that industrial development which will inevitably follow the establishment of the bulk loading facility at East Arm is not hindered or prejudiced.

87. LASH Proposal We noted that it is the present firm intention of the Western Australian State Shipping Service to have a LASH vessel constructed to operate on the West Coast - Darwin service and that tenders for this ship are expected to be called shortly. The berthing arrangements for the LASH lighters in Darwin envisage a terminal and unloading facilities as part of the Frances Bay small ships facility, but additional to the works in this reference.

88. Evidence was given to the Committee that further dredging in the small ships facility will be needed to provide access and berthing for LASH lighters. It was also ascertained that it would be very significantly cheaper for this dredging to be undertaken concurrently with the dredging in Frances Bay which is part of this reference, rather than to bring a dredge back to Darwin a second time. In the remote event that the LASH service does not eventuate, the additional dredging would, in all probability, be required in the long term for the extension of the small ships facility. The cost saving in carrying out the additional dredging at the outset is expected to be in the order of \$350,000.

89. Although there is still a slight element of doubt about the introduction of the LASH service, we believe that it is prudent to recommend that dredging for the LASH facility be undertaken concurrently with other proposed dredging work in Frances Bay.

RECOMMENDATIONS AND CONCLUSIONS

90. The summary of recommendations and conclusions of the Committee is set out below. Alongside each is shown the paragraph in the report to which it refers.

Paragraph

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|----|--|----|
| 1. | THE PORT OF DARWIN IS SUFFERING SEVERELY FROM CONGESTION AND THERE ARE CONSIDERABLE CARGO HANDLING DIFFICULTIES. | 56 |
| 2. | THE GEOGRAPHICAL LIMITATIONS OF THE MAIN PORT AREA MAKE IT UNSUITABLE FOR DEVELOPMENT TO MEET ALL THE LONG TERM PORT NEEDS OF DARWIN. | 56 |
| 3. | THE COMMITTEE CONCURS IN THE RETENTION OF THE GENERAL CARGO FACILITY IN THE STOKES HILL/FORT HILL AREA. | 57 |
| 4. | THE ESTABLISHMENT OF A SMALL SHIPS FACILITY IN FRANCES BAY AND OF A BULK LOADING FACILITY AT EAST ARM IS CONSISTENT WITH THE CURRENT AND FUTURE PORT FACILITY REQUIREMENTS OF THE DARWIN AREA. | 57 |
| 5. | SUBJECT TO THE RECOMMENDATIONS WHICH FOLLOW, THE COMMITTEE RECOMMEND THE CONSTRUCTION OF THE WORK IN THIS REFERENCE. | 81 |

Paragraph

6. THE ESTIMATED COST OF THE WORK REFERRED TO THE COMMITTEE WAS \$19.03 MILLION. 82
7. THE DEPARTMENT OF HEALTH SHOULD TAKE STEPS TO EXPEDITE THE CHOICE OF A SITE FOR THE NEW QUARANTINE STATION AND TAKE EARLY ACTION FOR THE DESIGN AND CONSTRUCTION OF THE NEW FACILITY. 86
8. IT IS RECOMMENDED THAT DREDGING FOR THE LASH FACILITY BE UNDERTAKEN CONCURRENTLY WITH OTHER PROPOSED DREDGING WORK IN FRANCES BAY. 89


(C.R. KELLY)
Chairman.

Parliamentary Standing Committee on Public Works,
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CANBERRA, A.C.T.

27 October 1970.