



1972

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

Parliamentary Standing Committee on Public Works

REPORT

relating to the proposed

DEVELOPMENT OF NADZAB AIRPORT Papua New Guinea

(THIRTIETH REPORT OF 1972)

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

DEVELOPMENT OF NADZAB AIRPORT
PAPUA NEW GUINEA

R E P O R T

By resolution on 31 August 1972, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report to the Parliament, the proposal for airport development at Nadzab, Papua New Guinea.

The Committee have the honour to report as follows:

THE REFERENCE

1. The proposal referred to the Committee comprises:
 - strengthening and reshaping the existing runway;
 - construction of taxiways;
 - construction of a passenger terminal complex comprising the terminal building, aircraft aprons, roads, car parks and associated engineering facilities;
 - construction of airport services buildings;
 - construction of a D.C.A. maintenance complex; and
 - associated roads, drainage and other engineering services.

2.

2. The airport master plan providing for the ultimate possible development of the site indicates that a system of 13,000 ft parallel runways could be achieved. Adequate space is also available for associated buildings and car parking areas.

3. The work in stage 1 is estimated to cost \$3.85 million.

THE COMMITTEE'S INVESTIGATION

4. The Committee received written submissions and drawings from the Departments of Civil Aviation and Works and took evidence from their representatives at a public hearing in Canberra. Supporting written submissions were also received from the Administrator of Papua New Guinea and Mr. H.R. Niall. We inspected the airport at Lae and the facilities at Nadzab including the areas planned for development.

5. The Committee's proceedings will be printed as Minutes of Evidence.

LAE AIRPORT

6. Operational Difficulties The Lae region of Papua New Guinea is served by an airport located within the township itself. Facilities at the airport limit operations to aircraft up to Fokker Friendship (F27) size by day only, and the shortage of land available for airport expansion restricts the capacity of operating and supporting services. The airport is a considerable source of noise nuisance, particularly to the district hospital, and is inhibiting the town's balanced urban development. The Committee were told that the airport land is planned by the Papua New Guinea Government for an urban development valued at about \$1.5 million.

7. The efficiency of the Lae Airport tends to be limited by the inclement weather characteristic of its coastal situation.

We also noted that whilst it is satisfactory for F27 services, the airlines are prevented from introducing larger and faster aircraft to cope with the growing traffic by the physical limitations of the facility, the noise problem and the restricted hours of operation.

8. Lae is the transport and commercial focal point for a relatively well developed region. Both the Commonwealth and Papua New Guinea Governments have accepted the United Nations Development Programme recommendation to provide Lae with an airport which can be made to meet international requirements.

9. Aircraft and Passenger Traffic The Committee were told that passenger movements at Lae Airport have increased from 137,248 in 1966 to 165,110 in 1971. Aircraft movements during the same period increased from 29,070 to 55,040. Of the latter 11,800 were movements of regular public transport aircraft, 39,590 were other civil aircraft and 3,650, military aircraft.

10. Passenger movements are expected to increase to 213,000 in 1975, 289,000 in 1980 and 387,000 in 1985 which represents an average annual growth rate of 6 per cent. Aircraft movements are predicted to rise to 59,200 in 1975, 69,400 in 1980 and 81,200 in 1985, an average annual growth rate of 2.8 per cent.

11. Committee's Conclusion As the Lae Airport is suitable only for daytime use, is limited in capacity to F27 aircraft, has a serious aircraft noise problem, and is inhibiting the balanced urban development of Lae, the Committee concluded that the facility should be relocated.

THE SITE

12. Several alternative airport sites were considered. Of these, Malahang to the east of the township is operationally unacceptable as overshoot procedures are far from ideal and Lae would still suffer noise nuisance. Further to the east, Singaua, was also considered to be unacceptable due to terrain, weather and overshoot procedures. In addition a costly new access road involving about six bridges would be required.

13. The third alternative, Nadzab, is some 26 miles to the north-west of Lae and situated in the Markham Valley. It already has a runway 8,000 ft long by 100 ft wide which can be made operationally acceptable, it is capable of development for night flying and international needs, aircraft noise would not be a problem, and is being connected with Lae by a sealed road, the Highlands Highway. As an alternative landing point to Lae, experience has confirmed the superiority of its weather conditions from an operational viewpoint over sites in coastal locations. Its annual rainfall is about 55 inches compared with Lae's 180 inches.

14. Additional Land The ultimate development of the airport and the siting of transmitter, receiver and navigational aid facilities will necessitate the addition of 1,920 acres to the existing airport area of 1,060 acres.

15. The additional area is traditionally native owned land and whilst the Committee were informed that no great difficulty or undue delay is expected to occur with purchase or acquisition, we were disturbed that negotiations for the land have not already commenced. The Committee's endorsement of this proposal must therefore be conditional on satisfactory arrangements being made with the land owners concerned.

5.

16. The Environment The Committee directs the attention of the authorities concerned to the desirability of ensuring that land usage patterns in the vicinity of the airport are controlled so that environmental problems associated with the airport development and use, to not arise.

17. Committee's Conclusion Subject to the required additional land being available, the Committee consider the site at Nadzab to be suitable for the establishment of the proposed airport.

THE PROPOSED WORKS

18. Airport Standard The extent and scope of the proposed airport facilities is designed to meet traffic requirements up to 1980, permit the unrestricted use of F27 and Fokker Fellowship (F28) aircraft and allow for possible weekly operations, with some limitations due to the runway width of 100 feet, of medium sized jets such as the BAC 111.

19. The Runway The existing runway at Nadzab is 8,000 feet long by 100 feet wide and is bitumen sealed. An evaluation has shown that whilst the 1,500 feet at each end of the runway is satisfactory for the regular aircraft traffic proposed, the central 5,000 feet contains some weak areas. It is proposed to strengthen these areas by patching and re-construction and to re-shape the surface by re-sheeting it with a bituminous surface seal on 6 inches of fine crushed rock. In addition the 1,500 feet ends of the runway will be re-sealed and sealed gravel shoulders 10 feet wide will be provided.

20. Low intensity elevated lights will be provided along each side of the runway and a T-VASIS landing aid installed at each end.

21. On completion of this work the runway will be satisfactory for unrestricted use by F27 and F28 aircraft and for the intermittent operations of medium sized jets.

22. Taxiways It is proposed to construct parallel and connecting taxiways in a flexible pavement comprising a bituminous surface seal on 6 inches of fine crushed rock overlaying 12 inches of gravel. Where the parallel taxiway is located on existing pavement it will be re-sheeted with 6 inches of fine crushed rock and bitumen sealed. The taxiways will be of the same strength as the runway and will be 50 feet wide with sealed gravel shoulders 10 feet wide.

23. Terminal and General Aviation Aprons The terminal apron will be 1,400 feet long and 280 feet wide and will be of the same construction as the taxiways. It will provide parking for nine aircraft which will be sufficient for peak periods up to 1980.

24. The general aviation apron will have a sealed gravel pavement 12 inches thick. Bituminous surfaced shoulders will be provided to all apron pavements.

25. Design of Buildings Wherever practicable, the airport buildings have been designed to provide maximum flexibility for future extension or alteration. They will be sited so that the main elevations face north/south to enable roof overhangs to provide sun protection to windows and walls.

26. Fire Station The airport fire station, a single storey structure, will accommodate three fire fighting appliances, staff amenities areas and an office, watchroom and workshop.

27. Control Tower, Airport Lighting Room and Power House The control tower, some 50 feet high, will have a minimum of accommodation within the tower itself, ancillary services being at ground level. The latter will be located in two single storey structures beneath the tower and include the power house, the airport lighting room, a mechanical plant room, amenities areas and a radio equipment room.

28. Terminal Building The terminal has been designed to cater for both passengers and other airport visitors during aircraft peak periods. Based on an expected 70 per cent load factor, it has been estimated that up to 520 and 260 persons respectively in these categories will need to be accommodated in the terminal at the one time.

29. Provision will be made for bus parking under the main roofed area and other facilities including a concession area capable of enclosure and air conditioning by concessionaires, airlines offices, a passenger lounge, baggage areas, departmental services and minimum international passenger clearance facilities. Special toilet facilities will be provided for physically handicapped people and ramps will be provided where appropriate.

30. The terminal will have a large roofed area and a minimum of enclosing external walls to ensure maximum natural ventilation which will be assisted by ceiling fans. The building will be protected from aircraft blast effects by glazed screens between the columns of the covered passenger walkway.

31. Operations Building This single storey building will contain sound insulated offices for meteorological, briefing, air traffic control, communications and search and rescue services. The design will permit ready extension and internal partitions will be demountable for maximum flexibility.

32. DCA Maintenance Complex This complex will contain five buildings including a mechanical, electrical and radio workshop, a workshop building for plumbing, carpentry and painting services, an airport store, a vehicle shelter incorporating a groundsman's store and an office/amenities building.

33. Transmitter and Receiver Buildings The transmitter building of 1,300 square feet, to accommodate radio equipment and emergency power generation and mechanical plant will be located in the south-east corner of the airport.

34. The smaller receiver building will contain radio receiver equipment and mechanical cooling plant. It will be constructed in the south-west corner of the site with a minimum of metal to reduce radio interference.

35. External Materials and Finishes Generally the buildings will have steel deck roofs and pre-finished horizontal profiled steel sheet walls and roof fascias. The receiver building, however, will have a corrugated asbestos cement roof and asbestos cement sheeting walls. Other materials include double glazed windows in the control tower, steel mesh security screens with painted frames in the terminal building, and elsewhere, painted timber window and door frames. Exposed structural steel work will be painted.

36. Internal Materials and Finishes Generally floors will be granolithic or concrete. However the amenities and office areas, and toilets in the terminal will have vinyl tiles. The cabin of the control tower will be carpeted for acoustic reasons.

37. Walls generally will be sheathed with compressed asbestos board. Public areas in the passenger terminal will have concrete block partitions as will those areas of the operations building requiring sound isolation.

38. Ceiling finishes will include asbestos board, acoustic tiles, and cement bound wood fibre panels.

39. Structure The terminal will have steel columns supporting exposed open lattice pipe roof framing. Other buildings with wide spans will have steel portal frames.

Infill panels between the columns of steel framed buildings, and the structure of other buildings, will be timber.

40. The columns of steel framed buildings will be founded on concrete footings, whilst those with timber frames will be constructed over reinforced concrete floor slabs. The control cabin will have a suspended reinforced concrete floor.

41. All structures will be designed to be earthquake resistant.

42. Engineering Services It is proposed to air condition those areas in the fire station, control tower, operations building, terminal building, and receiver building with special operational requirements. Areas accommodating diesel generator plant, radio transmitter equipment, toilets, cleaners' rooms and internal office areas will be mechanically ventilated. Occupied areas relying on natural ventilation will have ceiling fans. Other mechanical services include domestic hot water, kitchen equipment, heavy equipment lifting facilities, a vehicle hoist, compressed air and a cleaning booth for the teletype maintenance room.

43. Electricity will be supplied by the Papua New Guinea Electricity Commission through substations suitably located around the airport. Essential services will be provided with emergency power from diesel generating plant. Lighting generally will be fluorescent in buildings, the aircraft parking apron will be flood-lit and street, car park and area lighting will be provided.

44. An automatic fire detection system will be installed in all buildings and a high pressure water supply will be connected to hydrants at suitable points. Portable fire extinguishers will also be provided.

45. The access road from the Highlands Highway will be sealed 22 feet wide as will the roads servicing the airport buildings. Car parks will also be sealed and where close to buildings, will have concrete kerbs and gutters and underground drainage. The airport perimeter road, roads leading to the navigational aids, and the access road to the Mission south of the airport will be unsealed gravel 12 feet wide.

46. Water supply will be obtained from bores and will be pumped to a 30,000 gallon ground level storage tank and a 3,000 gallon elevated storage tank. Individual buildings will be provided with separate septic tanks for sewerage treatment.

47. Committee's Conclusion The Committee recommend the construction of the work in this reference.

ESTIMATE OF COST

48. The estimated cost of the work when referred to the Committee was \$3,850,000 made up as follows:

	\$
Building works	1,450,000
Airfield works	1,570,000
Other engineering works	830,000
	\$3,850,000

PROGRAMME

49. After an approval to proceed is given it is estimated that the preparation of the final drawings and the letting of contracts will take 48 weeks. Construction time for the work is estimated at 72 weeks after the contracts have been let.

RECOMMENDATIONS AND CONCLUSIONS

50. 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.

	<u>Paragraph</u>
1. THE LAE AIRPORT SHOULD BE RELOCATED.	11
2. THE COMMITTEE'S ENDORSEMENT OF THIS PROPOSAL IS CONDITIONAL ON SATISFACTORY ARRANGEMENTS BEING MADE FOR THE PURCHASE OR ACQUISITION OF CUSTOMARY LAND REQUIRED FOR THE DEVELOPMENT.	15
3. LAND USAGE PATTERNS IN THE VICINITY OF THE AIRPORT SHOULD BE CONTROLLED SO THAT ENVIRONMENTAL PROBLEMS ASSOCIATED WITH AIRPORT DEVELOPMENT AND USE DO NOT ARISE.	16
4. SUBJECT TO RECOMMENDATION NO. 2 THE SITE AT NADZAB IS SUITABLE FOR THE ESTABLISHMENT OF THE PROPOSED AIRPORT.	17
5. THE COMMITTEE RECOMMEND THE CONSTRUCTION OF THE WORK IN THIS REFERENCE.	47
6. THE ESTIMATED COST OF THE WORK WHEN REFERRED TO THE COMMITTEE WAS \$3,850,000.	48

G.R. Kelly
(G.R. KELLY)
Chairman.

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

12 October 1972.

AUSTRIA

INDIA