

Notes

- ① Relocation of house units are required for a medium term development plan targeted for the year 2000 within the airport development area.
- ② It is recommended that resettlement measures be provided for the communities which will be obliged to relocate taking into account social and welfare aspects, in order to carry out the airport project smoothly.
- ③ Relocation of house units is also required for the long term master plan up to the year 2010 due to the airport development area.
- ④ House units are under the influence of aircraft noise impact by WECPN 75.
- ⑤ Jesus Christ College is under the influence of aircraft noise impact by WECPN 70.
- ⑥ Existing streams are under the influence of drainage systems and domestic waste water discharged and generated by the airport project.

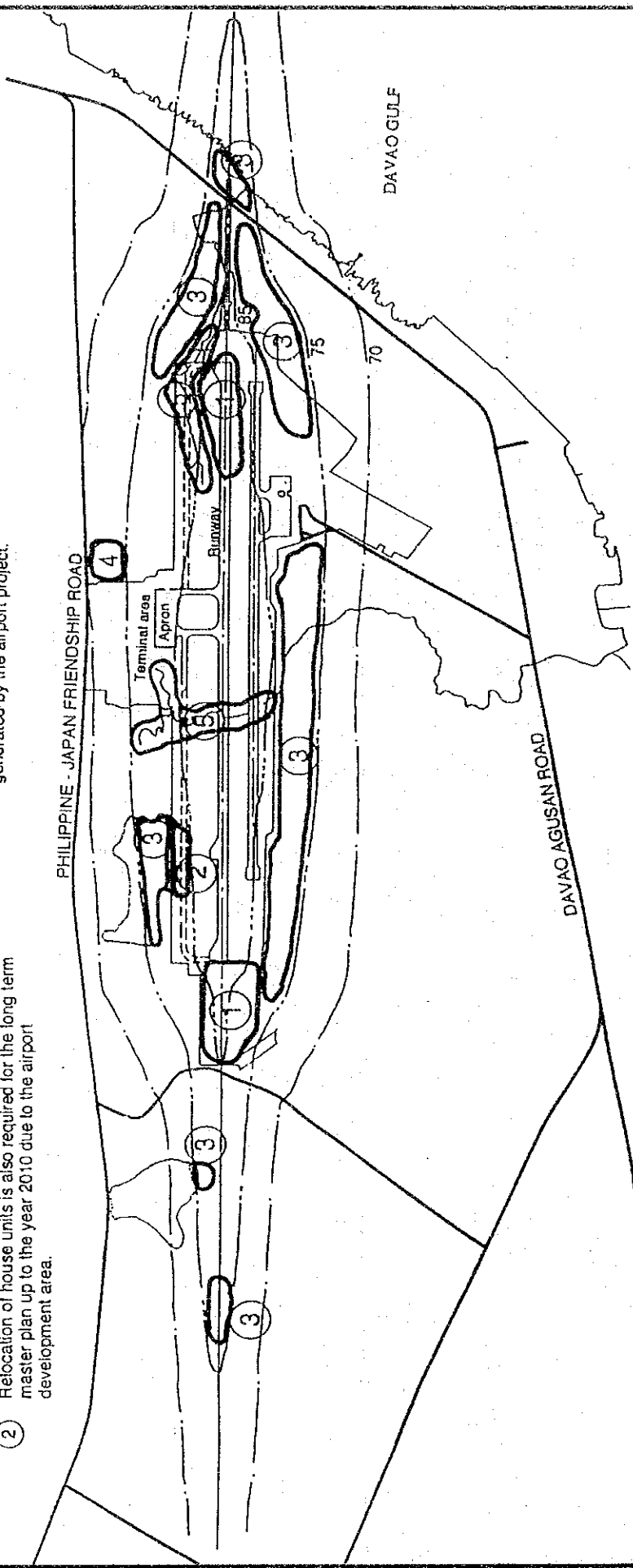


Figure 13.4.4 Identification of Major Urban Issues

13.4.3 Establishment of Future Land Use Objectives

In addition to the identification of urban issues explained previously, priority projects (Refer to Figure 13.4.5), and the Davao Land Use Master Plan 1979-2000 (Refer to Section 3.12.2) were confirmed in order to establish future land use planning objectives. The priority projects of the plans are as follows:

- a) Tourism industry development in Samal Island and Resort City in the south at the foothills of Mt. Apo.
- b) Regional Industrial Center (RIC) at Barangay Panacan north of the airport.

Future land use objectives are established as follows:

- a) To implement the airport master plan smoothly and in harmony with the community developments surrounding the airport.
- b) To meet the obstacle limitation surface requirements (Refer to section 5.3) in order to have safe airport operations.
- c) To consider proposed land use control on aircraft noise pollution which will have the most serious environmental impact on the community (Refer to section 13.2).
- d) To consider improving the living environment in the surrounding communities.
- e) To consider the Regional Industrial Center as a development potential for the future land use plan.
- f) To promote commercial and industrial developments which are related to the airport development to create employment opportunities.

13.4.4 Proposed Future Land Use Plan

The proposed future land use plan was established based on the objectives stated above and is shown in Figure 13.4.6.

The northern part of the airport will have commercial and industrial development potentiality, while the southern part of the airport will continue to be residential areas taking into account the present housing circumstances.

It is recommended that the local government agencies will examine the proposed future land use plan, and will enact it in order to implement not only the airport development but also the community development surrounding the airport as soon as possible.

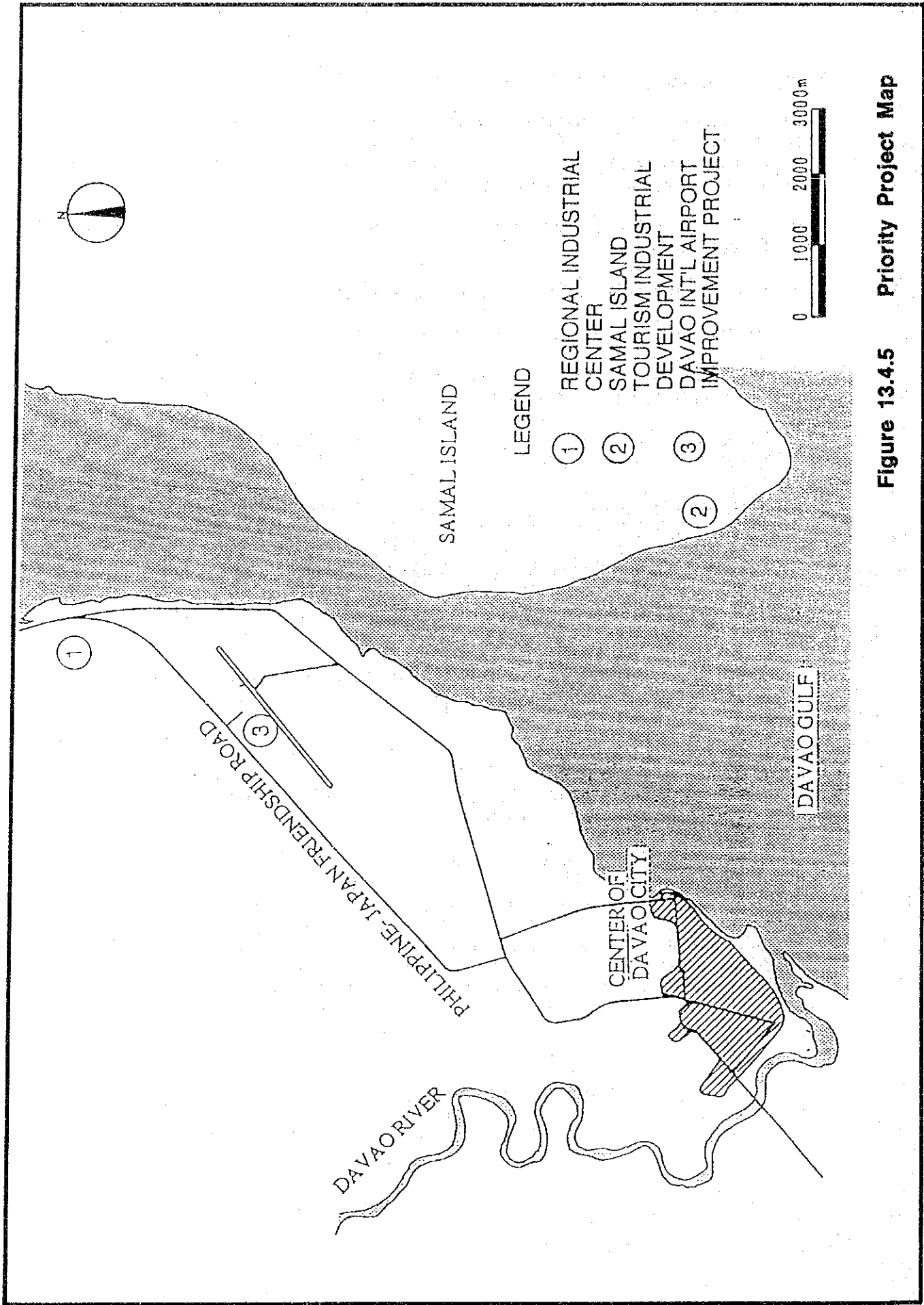


Figure 13.4.5 Priority Project Map

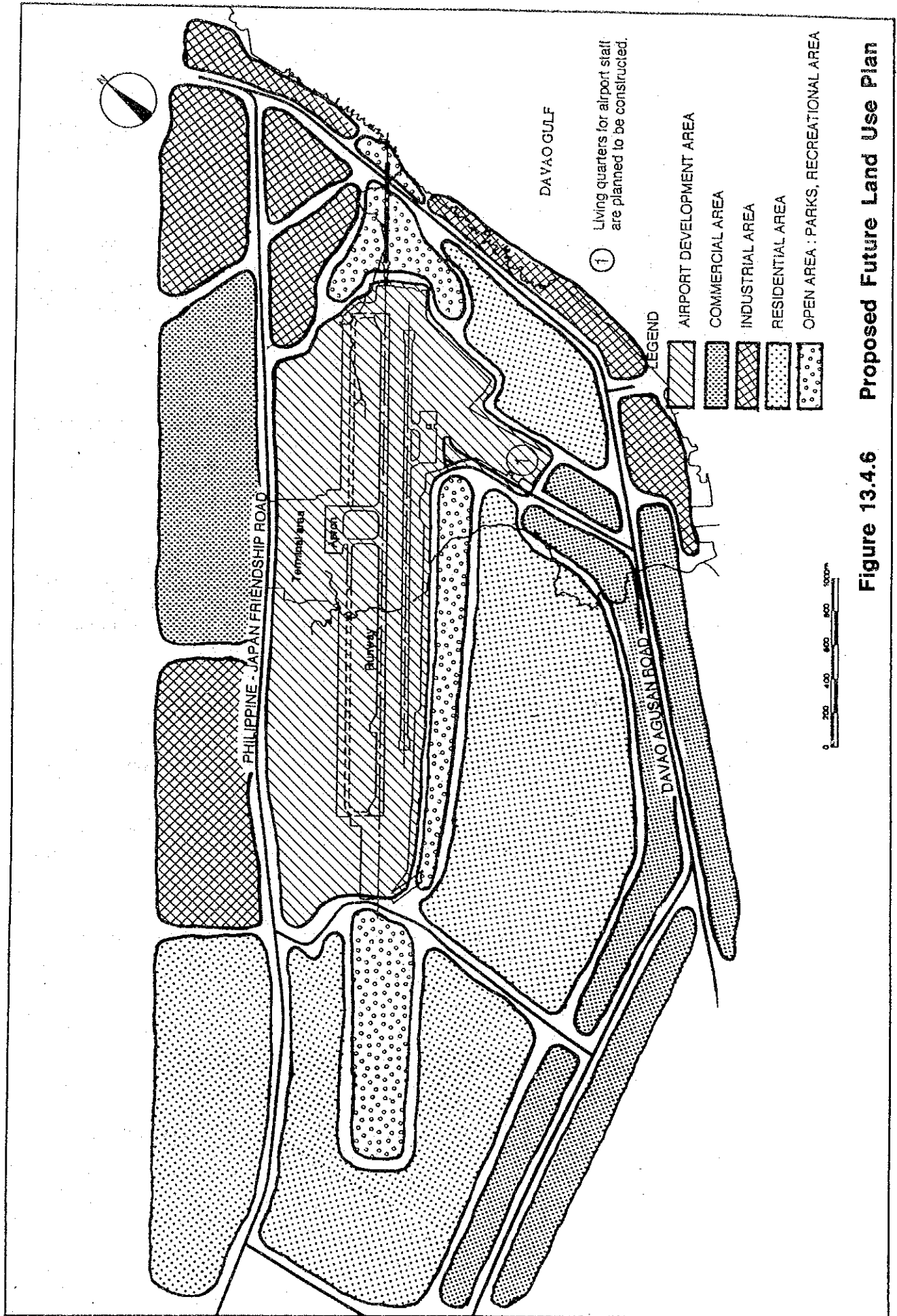


Figure 13.4.6 Proposed Future Land Use Plan

13.5 Comprehensive Evaluation

Evaluation of the impacts of the airport development is summarized from the following aspects:

(1) Technical Aspect

The preliminary design and construction schedule of the medium-term development basically satisfies the technical requirements, including the requirements for the safety of aircraft operations, as described in Chapters 9 and 10. No technical problems during the construction period, as well as after the completion of the construction work are anticipated.

(2) Airport Managerial and Operational Aspects

The medium-term development will require an increase in airport staff personnel and some other measures in terms of airport management and operations as mentioned in Chapter 11. Through the above measures, the airport is expected to be managed and operated satisfactorily after the medium-term development.

(3) Financial Aspect

The total project cost for the medium-term development is estimated to be 2,712 million PHP as mentioned in Chapter 10. Since the large-scale air transport projects currently undertaken by DOTC are scheduled to be completed by 1995, this investment is not considered to be a heavy burden for the Philippine Government.

(4) Economical Aspect

An EIRR is estimated to be 17.7% as shown in Chapter 12. This indicates that the medium-term development project is feasible in terms of the national economy of the Philippines.

In addition to the benefits which are counted in the economic analysis, the following indirect and/or intangible benefits are expected to be brought about as a result of the implementation of this project:

- Air transport safety,
- Improvement of the national economy resulting from unrestricted and efficient air transport services,
- Increase in trade and business opportunities,
- An increase in employment opportunities, and
- Stimulation of international tourism.

(5) Environmental Aspect

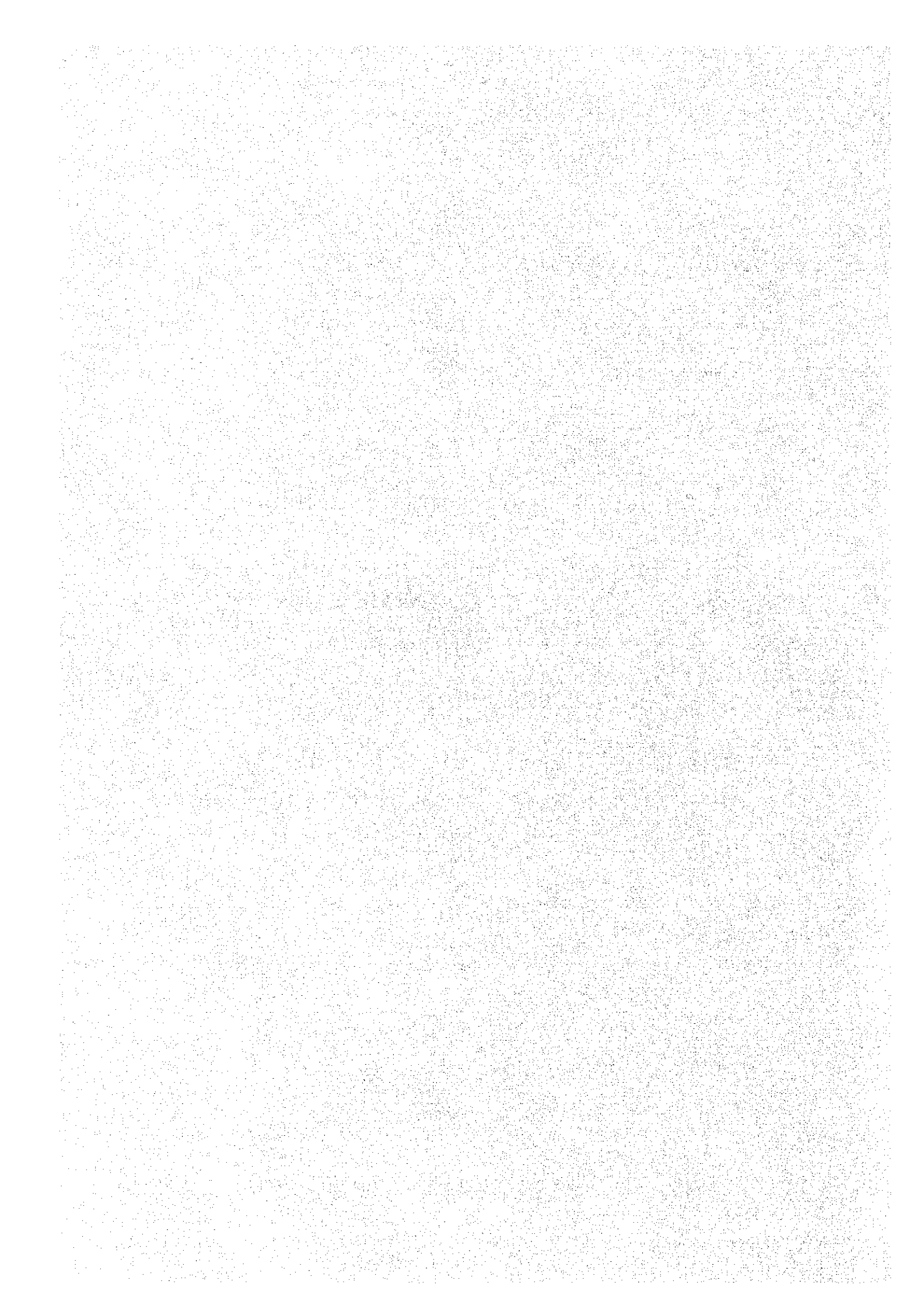
As mentioned in Section 13.2, by taking specific measures, such as land use control, no environmental problems are expected in the future.

(6) Social Aspect

As mentioned in Section 13.3, the land required for the airport development is expected to be acquired by DOTC with the assistance of local government agencies. Therefore, social impact will not be a problem.

Based on the above evaluations, not only the medium-term but also the long-term development project is considered to be feasible from the comprehensive aspects.

**CHAPTER 14 CONCLUSIONS AND
RECOMMENDATIONS**



CHAPTER 14 CONCLUSIONS AND RECOMMENDATIONS

14.1 Study Objectives

While Davao International Airport is the third largest airport in the Philippines and is classified as an alternate international airport by ICAO Regional Air Navigation Plan for Asia and Pacific, its existing air-side facilities and airspace do not fully meet the specifications adopted by the Council of ICAO for the safety or regularity of international air navigation. The existing passenger terminal is also facing capacity shortage problems.

In order to solve these problems, the Study has been carried out with the assistance of JICA. The main objectives of the Study defined by JICA were :

- a) To formulate the Master Plan for Long-Term Development of Davao International Airport at the existing site ; and
- b) To evaluate the technical, economic and financial feasibility of the Medium-Term Development Plan to be formulated within the framework of the Master Plan.

14.2 Summary of the Study

The Study has been carried out to fulfill the above mentioned objectives. Because of the limited land area available at the airport as well as the housing developments encroaching on the airport, it was not an easy task to develop an ideal Master Plan for the airport. Nevertheless, the optimum Airport Master Plan shown in Figure 7.6.13 has been selected after a comprehensive comparison of various alternative plans.

The outline of the selected master plan and feasibility study is summarized as follows :

- a) Phased development and major construction items
 - i) Medium-Term Development Plan (Target Year 2000)
 - Construction of a new 2,500m long runway located 140m away from and to the north of the existing runway.
 - Construction of new terminal facilities, including an apron, a passenger terminal building, a cargo terminal building, an administration building with a control tower, a fire station and a car park at the north side of the new runway.
 - ii) Long-Term Development Plan (Target Year 2010)
 - 500m runway extension toward the west.
 - Expansion of the terminal facilities.
 - iii) Future Provision (After Year 2010)
 - Construction of a parallel taxiway if required.

- b) Based on 1992 prices the estimated costs for the medium-term development project are 136 million PHP for land acquisition and compensation, and 2,576 million PHP for construction works and engineering services, which amounts to 2,712 million PHP and includes a 10% contingency.
- c) The construction work is estimated to take about 33 months to complete. Prior to the construction work, some 33 months lead time will be required for financial arrangement, land acquisition and detailed design. The construction work may commence in the second quarter of 1996 and be completed by the end of 1998 at the earliest. While the design target year of the medium-term development plan is 2000, the proposed facilities are deemed to be capable of accommodating the air traffic demand up to 2005 if the level of service in the new passenger terminal building can be lowered from C (good) to D (adequate) categorized by IATA.
- d) The medium-term development plan is judged to be economically feasible from the viewpoint of the national economy of the Philippines since the estimated Economic Internal Rate of Return (EIRR) indicates 17.7% and exceeds the "opportunity cost of capital" of 10% to 12% which the World Bank generally adopts as a criterion for selecting economically viable projects.
- e) It will be difficult to recover the investment cost of the medium-term development by the operating revenues to be gained at Davao International Airport under the current charging system. However, if a certain reasonable governmental fund disbursement and a moderate increase of airport fees and charges are implemented, a self-supporting management will be viable by a relatively earlier period in 35 years of the said project life.

It must be reminded here, however, that the selected optimum Master Plan is viable on the conditions as follows :

- a) Initially some 290 housing units for the medium-term development and additional some 160 housing units for the long-term development need to be relocated in order to secure the land area required for airport facility development as well as to meet ICAO obstacle clearance requirements ; and
- b) Some 2,000 housing units are estimated to be exposed to aircraft noise of WECPNL 75 and above in 2010. Despite the strong concerns raised by the Study Team about this noise problem, DOTC and the local agencies gave assurance that it would be no problem due to the difference of noise tolerances by Philippine nationals. This assurance needs to remain unchanged, otherwise some measures would need to be taken either to install noise insulation or to relocate the housing units in question.

14.3 Conclusions

While the selected optimum Master Plan contains two sensitive issues - house relocation and aircraft noise problems (by Japanese criteria) mentioned in the items a) and b) above - it was made clear by the Study that the medium-term development is economically feasible. In addition, there are pressing needs to upgrade the existing airport facilities not only for air safety but also to meet international standards in order to accommodate the anticipated scheduled international flights to/from Hong Kong in 2000 and Tokyo / Honolulu in 2010. It is obvious that the proposed medium-term development would satisfy the said needs and contribute a great deal to the development of Davao City and its surrounding regions. The proposed medium-term development not only fulfills

DOTC's long standing promises to the Davao City but also agrees with the policy of the Central Government to promote decentralization of the national developments. As DOTC is expected to become relieved from the heavy budgetary burdens, especially the Cebu Airport development by the end of 1995, the anticipated time for commencing the medium-term development of Davao International Airport, the third largest airport of the nation, would perfectly fit in the investment schedule of DOTC.

Consequently, it is concluded that the medium-term development project of Davao International Airport is feasible provided that the two issues previously mentioned are resolved. Furthermore, it is recommended to implement the project at the earliest possible time.

14.4 Recommendations

In order to implement the project as scheduled in this study, the following preparatory and coordination works by the Philippine Government are advisable :

- a) To obtain a national and regional consensus for the implementation of the project and to provide high priority among other national projects.
- b) To prepare financial arrangement.
- c) To amend the figures of 72 to 80 ha and extent of the reserved area for airport expansion indicated in the city ordinance issued in November 1992 as soon as possible so as to be in accordance with the airport master plan finally selected which requires the expansion of area of about 105 ha.
- d) To strictly control land use at the area surrounding the airport considering the future airport noise influence and the height restriction for safe aircraft operations.

JICA