

LAND RELEASE PROCESS

- 1.0 Many of the mechanisms relating to the release of land are provided by the Land Act 1996. The Act allows the government to control and manage land through the establishment of a Land Board and through the authority of the Minister for Lands & Physical Planning. Powers and responsibilities are shared between the Minister, the Land Board and the Departmental Head (of DLPP). As a general rule the Land Board considers applications for leases and makes recommendations to the Minister. Land may be exempted from advertisement by the Minister but only in exceptional and limited circumstances. The Minister has additional powers over matters which include, the acquisition of customary land, compensation claims, the direct grant of leases and licenses, the forfeiture of leases and the onward sale of developed land.

State Land

- 2.0 Approximately 15,200 hectares, or sixty per cent, of the total land area of the NCD is alienated or State land¹. If it is accepted that there is a "critical path" which could be represented as a flow chart of activities in the mobilization of state land for purposes of economic and social development it is clear that physical planning is the first stage and requires suitable emphasis and attention.
- 3.0 A physical planning board's decisions on zoning of land, under the Physical Planning Act, take precedence over any Land Board decision regarding use of land. This is provided, not by the Physical Planning Act, but by the Land Act itself, i.e. Section 67, Land Act 1996. This requires that a state lease shall not be granted for a purpose that would be in contravention of zoning requirements under the Physical Planning Act. Similarly Section 125 (2) of the Land Act requires that a licence shall not be granted for a purpose that would be in contravention of zoning requirements.
- 4.0 Government leases are generally for 99 years with conditions and classified for certain uses or special purposes. Land may be forfeited if leasing conditions are not met, e.g. non-payment of rent, failure to improve the land, etc. Licences, for a maximum period of one year, to enter or gain access to land can be granted subject to specific conditions.
- 5.0 The Land Act 1996 introduced new provisions whereby applications for Urban Development Leases, which replaced the former Town Subdivision Leases, are to be considered by special Land Boards with physical planning representation. The Chief Physical Planner has powers under the Land Act (Section 105) to exercise, or delegate, responsibility to certify the suitability of land for subdivision by means of its location, zoning, serviceability and phasing. The Department of Lands & Physical Planning may then advertise an Urban Development Lease for tender. This again confirms that physical planning considerations take precedence over Lands decisions.
- 6.0 Part V of the Land Act provides a mechanism for the reservation of land from lease; this would normally apply to land required for public purposes.

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- 7.0 Diagrams Appendix - A1 indicate the main processes involved in the release of State Land and safeguards to ensure compliance with the provisions of this Development Plan.

Customary Land

- 8.0 Approximately 9,800 hectares or forty per cent of the total land area of the NCD is in customary ownershipⁱⁱ. State land in the NCD has been quickly taken up with urban expansion, including informal settlements. Although there are opportunities for infill and consolidation of existing development on State land it means that most of future urban growth will have to be concentrated on customary land. Although this is a highly sensitive and controversial issue there exists a considerable opportunity for customary landowners to participate in the urban development process in partnership with the national government, the NCDC, statutory authorities and the private sector.
- 9.0 There are mechanisms in Part III, Sections 6-18, of the Land Act 1996 for the acquisition of customary land by the State. This can be by agreement or compulsory purchase. Division 3, Section 11, of that Act deals with the acquisition of land for Lease-leaseback purposes whereby a Special Agricultural & Business Lease can be issued. Part IV, Sections 19-48, deals with compensation for compulsory acquisition. Whilst the lease/lease back mechanism has been successfully utilised for projects in rural areas, Aldrichⁱⁱⁱ argues that it is unsuitable for the mobilization of land in urban areas, being more suitable for agricultural projects.
- 10.0 The procedures for the incorporation of a Land Group are specified in the Land Groups Incorporation Act, which is administered by the DLPP/Office of the Registrar of Incorporated Land Groups.
- 11.0 Where the "owners" of customary land wish to obtain title to their land, whether as individuals or as an Incorporated Land Group, then the related legislative mechanisms are as follows:
- Where the ownership of the subject land is in dispute then the procedural mechanism is the Land Disputes Settlement Act; i.e. mediation and thence the Local Land Court; appeal rights to the District Land Court and, possibly, access to the National Court via the process of judicial review.
 - Where the "owners" of customary land wish to obtain a title then the mechanisms are the lease/leaseback provisions of the Land Act 1996 (discussed in the last paragraph) or those specified in the Land (Tenure Conversion) Act. The latter Act provides for Freehold title^{iv} held in perpetuity.
- 12.0 Diagram Appendix – A2 indicates the processes involved in the release of customary land for development.
- 13.0 In June 1995, as a consequence of a commission with the State, i.e. the DLPP, Henao Lawyers published a paper entitled "The Registration of Customary Land: Information and Proposed Legislation". To date the proposed legislation has not been enacted.
- 14.0 The Department of Regulatory Services of the NCDC is currently working on a pilot settlement improvement project at June Valley (Uguha Dubu). One of the objectives of

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the project is to upgrade the settlement, which is on customary land, without alienating the land from the Motu Koita traditional landowners. It is intended to introduce appropriate land release mechanisms to achieve this.

- 15.0 The administrative support function for the NCDPPB was transferred from the DLPP to the NCDC in October 1998 and yet the Lands support function was retained in the DLPP and remains in the national department at the present time. The separation of these functions has led to many problems which will be discussed later.

ISSUES

- 16.0 The land allocation process relating to State land is not working successfully. This is widely acknowledged and has been recognised by the DLPP itself. "In reality there has been a succession of gross abuses and "ultra vires" decision making which has resulted in the grant of flawed titles variously interpreted by the Courts as fraudulent or nullities. This creates conflict with the concept of indefeasibility under the Land Registration Act."^v

Institutional Issues

- 17.0 There are serious disadvantages in the present arrangement of having the Planning and Lands functions located, not only in different institutions, but also in different levels of government. National government departments should confine themselves to matters of national policy and the maintenance of consistent standards throughout the country. Lower level agencies are directly concerned with the implementation of national policies and, in particular, ensuring that day-to-day development decisions in their particular areas are in line with those policies. It is inappropriate for the national DLPP to be involved in routine decisions about land allocation in the NCD. At the same time the NCDC, which holds the administrative physical planning function and is the implementing agency, does not hold the powers to reserve certain land for necessary public use or prevent incompatible or inconsistent leases from being issued.

Planning Issues

- 18.0 The physical planning process has been deficient to date in promoting forward planning and the subdivisional development of land in the NCD. The lack of recognition of the importance of forward physical planning, and subsequent lack of resource allocation, at both the national and local levels have undoubtedly contributed towards this. This Development Plan and the Local Development Plan Program, referred to earlier, are attempts to rectify that situation.

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Service Infrastructure Issues

- 19.0 Development plans and comprehensive subdivision designs, however, will have no real value unless they can be successfully implemented. One of the major elements affecting implementation will be the availability of infrastructure services in areas identified for new physical development in development plans. Without these it will not be possible to make newly designed parcels of land available for public tender.
- 20.0 There is a shortage of serviced land for tender. Although the DLPP has gazetted functions which include the planning, promotion and provision of land for development it has had no funding for land development^{vi} programmes. In the past the National Housing Commission (now Corporation) had funding for some land development for housing in the NCD, although there has been nothing available for the last 20 years. In effect overall land development has become no-one's responsibility. Since government has failed to provide adequate serviced land, the private sector has been responsible for its provision in the NCD over recent years. This has been done through Town Subdivision Leases and their successor Urban Development Leases. This mechanism has had only limited success due to the following problems:

- Leases issued to companies or individuals without the financial capacity to undertake the installation of utility services;
- Developers failing to install services to the required standard;
- Leases being surrendered and replacement 99 year leases issued without the conditions of the original 5 year lease being met or the land being subdivided

The existing situation reveals the need for a new approach to the planning and coordination of infrastructure services and land development. The draft National Urbanisation Policy identifies the need for a new National Land Development Agency to facilitate the controlled release of land in accordance with national urbanisation policy requirements.

Administrative Issues

- 21.0 The following problems have occurred, mainly due to having the administrative planning and lands functions separated:
- Lack of liaison between the DLPP and the NCDC;
 - Lands decisions taken without physical planning input;
 - Leases issued contrary to zoning;
 - Leases issued over reserved land;
 - Land parcels created without physical planning input or approval;
 - Double allocations of land;
 - Lack of forfeiture action;
 - Questionable decisions concerning Urban Development Leases.

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- 22.0 A review of the gazetted agendas for Land Board hearings over recent years will reveal that more often than not vacant State owned land is exempted from advertisement, not advertised for tender and granted to a single company or individual. Many of the exemptions are of dubious legality. This deprives interested potential developers of the opportunities to apply for the land.
- 23.0 The established procedures for the release of State land are not always followed in the land administration process due to irregularities and malpractices. This has been revealed in some notable court cases and Public Inquiries, e.g. the National Court case between Steamships Trading Co. Ltd and the Minister for Lands and Physical Planning, Garamut Enterprises Ltd and Ralph Guise and Ors, Members of the National Land Board (05552 of 1999).
- 24.0 Even though many leaseholders of undeveloped State Land have failed to meet lease covenants there has been a lack of forfeiture action to release the subject land for tender for prospective developers. There have been cases where holders of old Town Subdivision Leases had failed to subdivide the land and install services within the full period of the lease and yet were granted new Urban Development Leases without advertisement of the subject land.

Customary Land Issues

- 25.0 There is a lack of funding for land mediation. Since mediation is a pre-requisite to the referral of matters to the Local Land Court this means that no mediation leads to a situation of no referrals.
- 26.0 Aldrich^{vii} considers that the current legislation available to release customary owned land does not address the fundamental differences between the titles required for the mobilisation of customary land in rural and urban areas.
- 27.0 Dealings in customary land are time consuming. Aldrich^{viii} refers to "An apparent penchant by the Local Land Court to revisit previous decisions of the Native Land Commission and/or Land Titles Commission" which is specifically precluded by the provisions of the Land Disputes Settlement Act. The lack of funding for mediation also contributes to delays as well as "an apparent failure by claimants/disputants to pursue and prosecute their interests". This latter point being brought about by a lack of knowledge of procedures, rights and obligations.
- 28.0 Whilst there has been reluctance by traditional landowners to have their land managed in a formal way, pressure from settlers has led to some customary landowners accepting migrants onto their land and entering into ad-hoc land dealings without following the established planning or land procedures.
- 29.0 The UDPSS identified the most significant constraint to mobilising land suitable for urban development as disputes in ownership. It concluded that most customary landowners in the NCD viewed the registration and individual title ownership as a means by which "foreigners" will take away their land. Coupled with the fact that subdivision and

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ownership of land is contrary to the traditional way of life of the population of the villages in which the various clans share common grounds and facilities.

RECOMMENDATIONS

- 30.0 That the institutional arrangements for dealing with Lands matters in the NCD be changed to allow the planning and lands functions to be moved closer together to work hand-in-hand so that decisions are compatible and the NCD may be developed in line with the stated Vision of this Development Plan. "The NCDC must become an initiative and central agency within the decision process for land allocation within the NCD"^{ix}.
- 31.0 That in the immediate and short term the land administration function of the DLPP improves its procedures when dealing with land matters within the NCD by:
 - liaising more closely with the physical planning function of the Department of Regulatory Services, NCDC;
 - more vigorously pursuing forfeiture of land;
 - reducing the number of exemptions from advertisement;
 - increasing the advertisement of leases;
 - ensuring that the legislative procedures are strictly adhered to, particularly in relation to Urban Development Leases;
 - ensuring that meetings of the PNG Land Board are held in accordance with the legislative requirements; and
 - refraining from creating new parcels of land without physical planning input or approval.
- 32.0 That a single agency be established and funded to coordinate and undertake comprehensive land development programs in the NCD.
- 33.0 Settlements identified as suitable for upgrading in the NCD Settlements Strategy 2006-2010, should be progressively drawn into the formal urban fabric by subdividing the land, issuing individual titles to settlers and reserving sites for public facilities. Those located on customary land should follow the example of land release mechanisms being introduced in the June Valley (Uguha Dubu) pilot project.
- 34.0 That customary land should not be acquired by compulsory purchase, unless required for urgent public purposes, but rather mobilised by partnerships between national government agencies, the NCDC, the landowners and developers.
- 35.0 That, as recommended by Aldrich,^x customary landowners be equipped with the knowledge and tools to secure their own land interests, e.g. manuals, and that this be supported by appropriate agencies.
- 36.0 That the DLPP vigorously pursues the enactment of revised legislation relating to customary land.

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DIAGRAM APPENDIX - A1: LAND RELEASE PROCESSES – GENERAL STATE LAND

Check Physical Planning legislation (e.g. zoning) is complied with.

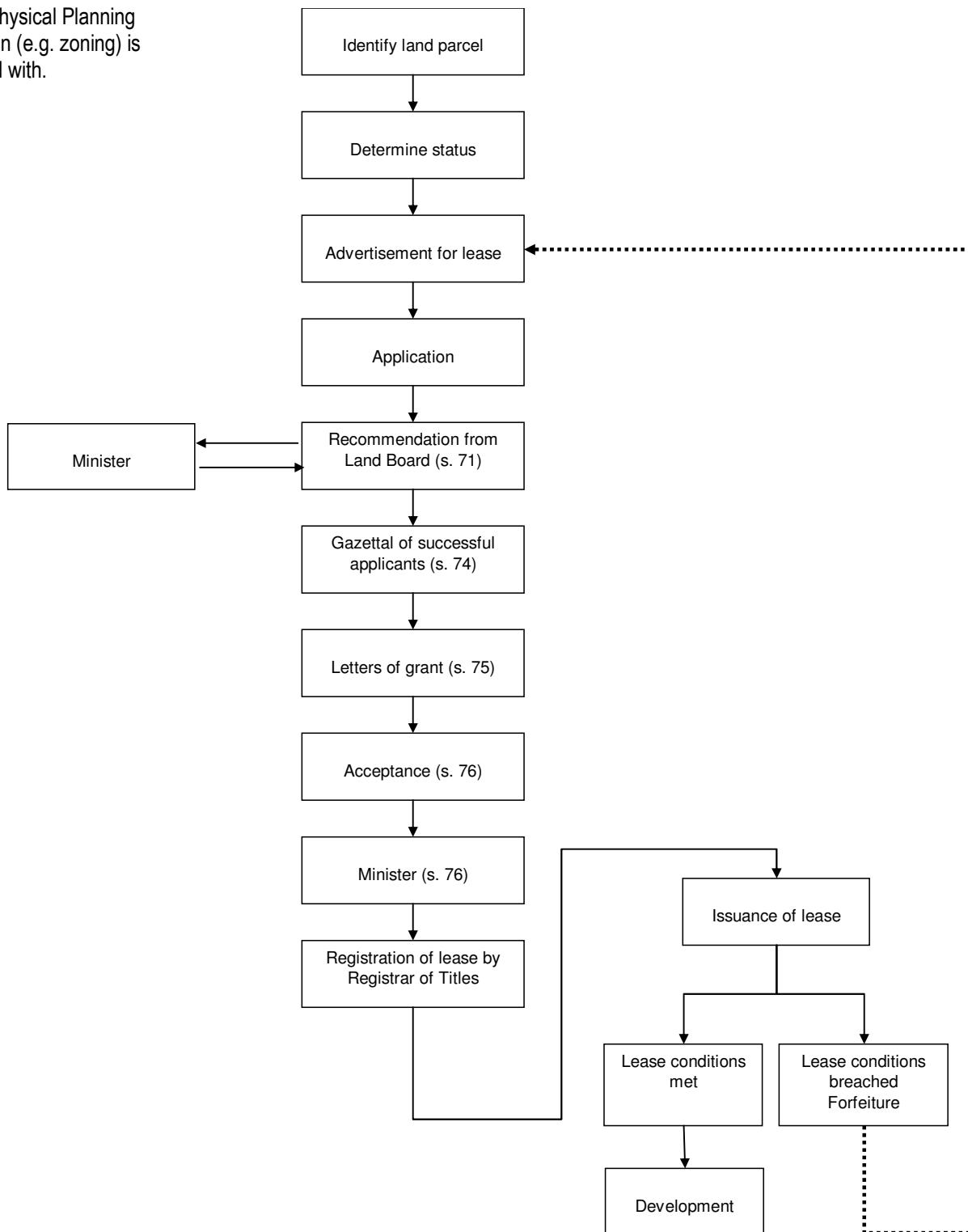
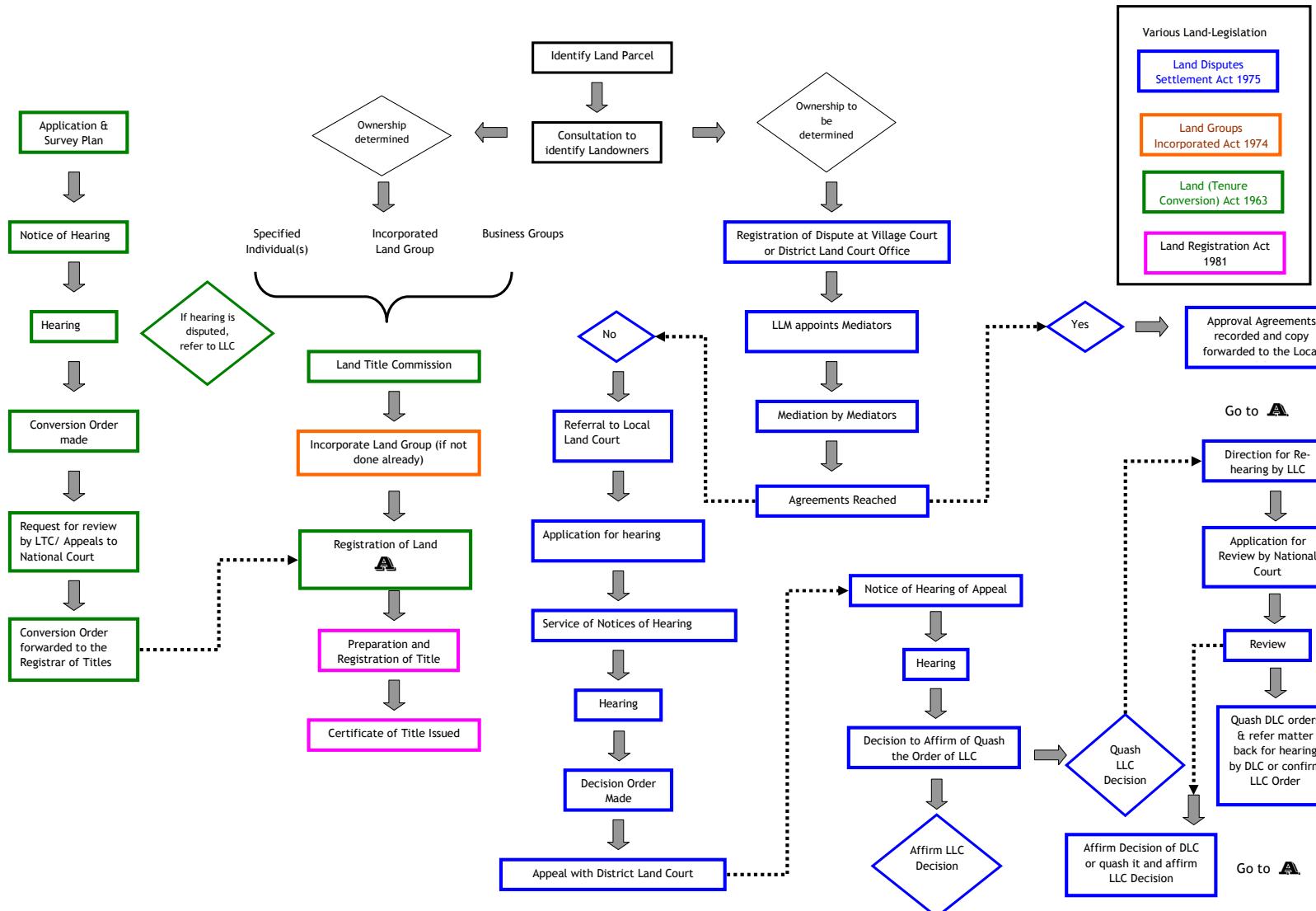


DIAGRAM APPENDIX – A2: LAND RELEASE PROCESSES – CUSTOMARY LAND



Notes

- ⁱ Wilbur Smith Associates, et al, *Urban Development & Services Study for the National Capital District - Physical Development Constraints - Final Report - Vol 3.10*, Author (Port Moresby), 1996, p. 26
- ⁱⁱ *Ibid.*
- ⁱⁱⁱ Aldrich., B, *The mobilization of customary Land in the National Capital District*, Paper presented at the Institute of Valuers & Land Administrators Conference, 2002
- ^{iv} The Constitution precludes the sale of freehold title to non-citizens. A citizen can be a naturalized citizen individual, an Incorporated Business Group or an Incorporated Land Group.
- ^v Office of the Chief Physical Planner, *Proposals for the amendment of the Land Act of 1996*, Paper presented to the Physical Planners Conference Port Moresby 2002.
- ^{vi} Installation of roads, drainage, water supply, sewerage and electricity reticulation.
- ^{vii} Aldrich., B, *The mobilization of customary Land in the National Capital District*, Paper presented at the Institute of Valuers & Land Administrators Conference, 2002
- ^{viii} *Ibid*
- ^{ix} Wilbur Smith Associates et al, *Urban Development & Services Study for the National Capital District - Institutional and Financial Improvements - Final Report - Vol 5.18*, Author (Port Moresby), 1996, p. 1
- ^x Aldrich., B, *The mobilization of customary Land in the National Capital District*, Paper presented at the Institute of Valuers & Land Administrators Conference, 2002

DEVELOPMENT CONTROL MECHANISMS

Introduction

The NCD Urban Development Plan (NCDUDP) provides a foundation for the future development of the NCD. It is important, therefore, that routine planning decisions comply with the provisions of the Plan and do not undermine its policies and proposals. “Within the proactive or creative framework established by development plans there are day-to-day reactive decisions, which are supposed to conform, more or less, to the overall plan. This activity is known as development control.”ⁱ

The purpose of this section of the report is to examine how development control mechanisms can assist in the implementation of the Development Plan by providing opportunities to ensure that future development occurs in line with its provisions.

Legislation

The Physical Planning Act 1989 and the Physical Planning Regulation govern the control of zoning, subdivision, consolidation, development and use of land in declared Physical Planning Areas in PNG. There are greater powers of control in declared Redevelopment Zones (s.73 of the Act).

The entire NCD is both a declared Physical Planning Area and a Redevelopment Zone. This provides opportunities for strictly controlling land use and development to conform to the NCD Urban Development Plan since all development requires planning permission.

There are other related pieces of legislation but the ***Land Act*** and the ***Building Act*** are the most notable.

The diagram at Appendix 1 shows the relationship between these three Acts.

The NCD Physical Planning Board is established by the Act and empowered to consider and determine all physical planning matters, which are wholly within the NCD. (s.33, s.42)

These include approval of Development Plans and determination of applications for planning permission.

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Sections 77 and 78 of the Act have comprehensive provisions on applications for planning permission and how Physical Planning Boards are to deal with them.

Either an applicant or an owner or occupier of the land in question can make an appeal against a planning decision (Part VIII of the Act). A Physical Planning Board is empowered by the Act (Part IX) to enforce its decisions within declared Physical Planning Areas and Redevelopment Zones.

Planning application process

A separate brochure is being prepared to give detailed guidance on:

- **when planning permission is required;**
- **processing of applications for planning permission;**
- **permission by the NCD Physical Planning Board v permission by Regulation;**
- **delegated decisions;**
- **decisions and notification;**
- **gazettal of zoning decisions;**
- **lapse of planning permission;**
- **entry into agreements;**
- **control of signboards and advertisements;**
- **preservation of trees;**
- **appeals;**
- **enforcement.**

The full process for dealing with planning applications is complex and is set out elsewhere. Within the Department of Regulatory Services of the NCDC there is a Strategic Planning Section, responsible for the preparation of this Development Plan, and a sister Development Control Section, which assesses zoning, development, subdivision, consolidation and land use proposals contained in planning applications. The Development Control Section also works with the Enforcement Unit in compliance and enforcement matters under the Physical Planning legislation. These three sections of Regulatory Services form the support for the NCD Physical Planning Board.

Once the administrative procedures of planning applications are complete the professional and technical aspects are dealt with by the Development Control Section. At this stage the provisions of the NCD Urban Development Plan will guide the evaluation of major proposals through the case report and consultation procedures, as referred to below.

Evaluation of proposals

The Manager, Development Control allocates applications for planning permission to individual case officers within his Section. The case officer will undertake an evaluation of the proposal, which is the subject of a planning application and prepare a case report with recommendations to the Board or the Director, Regulatory Services, NCDC (in the case of a delegated decision). The evaluation is based on:

- The development plan & policy context;
- Background research;
- Feedback from consultations;
- Conformity with regulated standards;
- Section 5 (of the Act) considerations.

It is evident that the proposals of the Urban Development Plan will be given prime importance in the evaluation of planning applications. In this way the policies and proposals of the Plan can be safeguarded.

Consultation

Many planning applications require consultations to be carried out with stakeholders before a comprehensive case report can be prepared and an objective recommendation made. Responses from consultees have an important bearing on the deliberations of the NCD Physical Planning Board prior to a decision being made. The Strategic Planning Section, as authors of the Urban Development Plan, will be consulted on major proposals which impact on the contents of the Plan. This mechanism should ensure that provisions of the Plan are protected by appropriate recommendations being made by the Strategic Planning Team on individual land use and development proposals. The recommendations will be included in the case report which is presented to members of the NCDPPB at least two days prior to a Board Meeting.

Technical heads committee

A Technical Committee (also referred to as pre-Board) screens all planning applications one week before the NCDPPB meetings. The purpose of the Committee is ensure objectivity and consistency in recommendations made to the Board. It also ensures that the interests of the representatives of various technical agencies are safeguarded. The Manager, Strategic Planning sits on the Committee and this is an additional check to ensure that the provisions of the Urban Development Plan are adhered to in any recommendation to the NCDPPB.

Appeals

Either an applicant or an owner or occupier of the land in question can make an appeal against a planning decision. An appeal is made to the PNG Physical Planning Appeals Tribunal and must be lodged within three months of the date of the Board decision.

An appeal has to be made in writing and has to state the grounds for the appeal. The Tribunal makes a recommendation on an appeal having either taken written representations from the interested parties or held a hearing. The NCD Physical Planning Board has the opportunity to present its representations to the Tribunal. These will include the provisions of the Urban Development which are relevant to the case under consideration. The Tribunal has obligations to observe principles of natural justice and take into account all relevant social, environmental and economic issues in its deliberations. The Tribunal's recommendation is made to the Minister for Lands & Physical Planning, who takes the final decision.

The Minister must make a decision on a recommendation of the Tribunal within one month and must publish the recommendation and the decision in the National Gazette. In allowing or rejecting an appeal the Minister must also specify the grounds for the decision.

Enforcement

A Physical Planning Board is empowered by the Physical Planning Act to enforce its decisions within a declared Physical Planning Area; within declared Redevelopment Zones there are more planning controls and, therefore, more enforcement opportunities. The whole of the NCD is a Physical Planning Area and a Redevelopment Zone.

Part IX of the Physical Planning Act (Sections 98-100 inclusive) forms the basis for taking enforcement action against unauthorized development and uses. It empowers the NCD Physical Planning Board to issue Stop Work and Demolition Notices and lays down penalties and default penalties to be applied. Anyone carrying out development or using land or buildings for purposes not in accordance with an approved plan or planning permission is guilty of an offence and subject to penalties.

The Physical Planning Regulation clarifies enforcement powers so that Court Action may be taken under a clear provision regarding default penalties. Further provision is made to enable recovery of the appropriate penalty for unauthorized use of land or buildings before deliberation is made on a planning application for the same site.

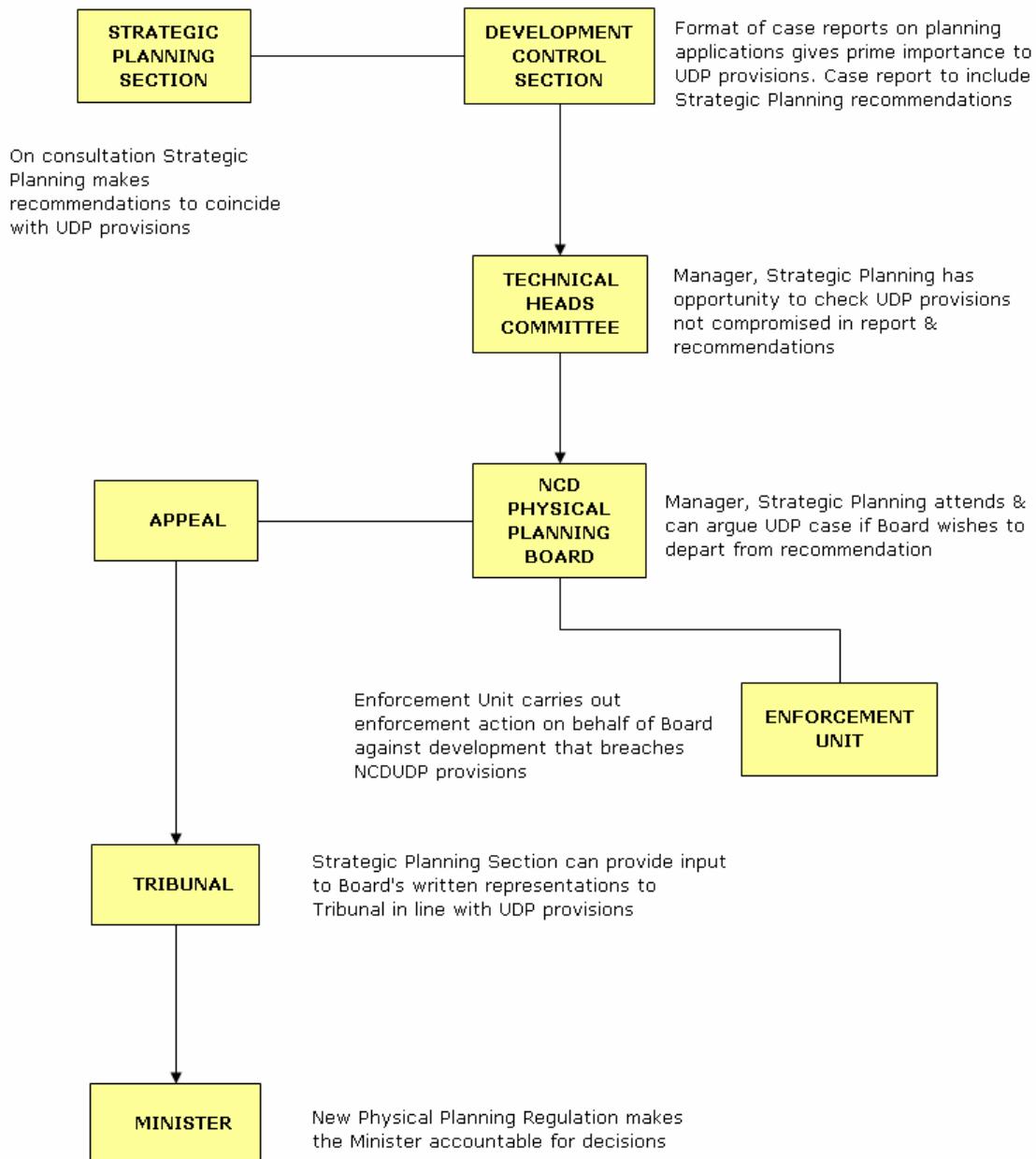
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The Enforcement Unit of the Department of Regulatory Services, NCDC carries out enforcement action on behalf of the Physical Planning Board. This Unit should safeguard the provisions of the UDP by taking action against illegal development which conflicts with the Plan's provisions. Enforcement procedures are currently being improved under Project Heturaⁱⁱ.

Conclusion

The mechanisms in the planning application process, which act as safeguards to the successful implementation of the Urban Development Plan, are indicated graphically in Attachment 2.

SAFEGUARDS TO ENSURE DEVELOPMENT CONTROL DECISIONS COMPLY WITH THE URBAN DEVELOPMENT PLAN



Notes

ⁱNCDC Planning Office, Handbook for the National Capital District Physical Planning Board, Author (Port Moresby) 2002, Para. 2.11, p6

ⁱⁱ Project Hetura is a capacity building exercise under the auspices of the Commonwealth Local Government Good Practice Scheme. The principal parties are the NCDC of PNG and Townsville City Council of Australia.

NCD URBAN DEVELOPMENT PLAN

TERMS OF REFERENCE

The NCD Urban Development Plan will:

1. State the vision and objectives which the Plan will serve; and
2. Identify the stakeholders and state their different and competing interests; and
3. Identify trends in Port Moresby's growth and imminent problems; and
4. Examine constraints to, and opportunities for, physical development; and
5. Review and evaluate the relevance of the proposals contained in the Wilbur Smith NCD Urban Development & Services Study 1996; and
6. Meet the minimum statutory requirements in proposing a broad land use and road development strategy for the NCD which will:
 - Not easily become out-of-date; and
 - Provide a guide for service & social infrastructure agencies in their planning and programming; and
 - Prioritise and provide a framework for the more detailed planning of local areas; and
7. Assume that the high growth population scenario in the Wilbur Smith Study of 675, 000 persons by the year 2015 is unsustainable and that a National Urbanisation Strategy will be prepared and adopted to facilitate more equal growth of urban areas; and
8. Describe land release and development control mechanisms; and
9. Identify a timeframe and contents for preparation of a more thorough Urban Study; and
10. Involve a Steering Committee to guide plan preparation and a combined NCDC/DLPP Technical Team for preparation of proposals.
11. Conform with the requirements of the Physical Planning Act 1989 and the Physical Planning Regulation 1990.

National Capital District Commission

National Capital District Urban Development Plan

August 2006

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ABBREVIATIONS & ACRONYMS

AGR	Average Growth Rate
AIDS	Acquired Immune Deficiency Syndrome
BOT	Build – Operate – Transfer
CMR	Child Mortality Rate
DEC	Department of Environment and Conservation
DLPP	Department of Lands and Physical Planning
HIV	Human Immuno-deficiency Virus
JICA	Japanese International Cooperation Agency
IMR	Infant Mortality Rate
LDP	Local Development Plan
MVIL	Motor Vehicle Insurance Limited
NCD	National Capital District
NCDC	National Capital District Commission
NPO	National Planning Office
NSO	National Statistical Office
OCPP	Office of the Chief Physical Planner
PMGH	Port Moresby General Hospital
PMV	Public Motor Vehicle
PNG	Papua New Guinea
POM	Port Moresby
TFR	Total Fertility Rate
UDSS	Urban Development and Services Study

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The Strategic Planning Team undertook the work but Mr. Kenneth Atasoa took the lead role. He devoted many man-months to the task and he had the assistance of:

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Ms. Emma Aenamero, Technical Officer (GIS)

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1.0 INTRODUCTION

In 1996, the National Capital District Urban Development and Services Study (NCD UDSS) was completed by Wilbur Smith Associates in association with Shankland Cox Limited and Frame Harvey West and Maso, but was not given the full statutory recognition. This means that there is no legal physical planning framework for the entire NCD.

The existing zoning system only caters for the built up areas of the NCD. However, as the city continues to expand there is mounting pressure, for the unzoned areas to be freed up for development. Due to this pressure leases have been issued for various purposes, over some of these unzoned areas, in a piecemeal manner without planning input.

Since 1996, much has changed both in the socio-economic and physical environment of the NCD. The planned land use pattern of the NCD has been changed by new development resulting from market forces and, in some instances, political decisions.

A prominent feature since 1996 has been the continued growth of unplanned settlements in various parts of the NCD, on both state and customary land.

Consequently there is an imminent need for an Urban Development Plan for the NCD. This has been confirmed by the support of the Chief Physical Planner, the NCD Physical Planning Board and the Minister for Lands & Physical Planning resulting in the publication of the Order to Prepare in the National Gazette.

SCOPE OF THE PLAN

The Urban Development Plan has been prepared in accordance with the Physical Planning Act 1989 and the Physical Planning Regulation. This factor, in itself, determined the scope of the Plan.

It is developed from the following contexts:

- History of Growth of the NCD;
- Physical Environment;
- Land Use Pattern; and
- Policy Framework.

This Plan is based to a large extent on the UDSS due to the urgent need for a framework for future development. Since it is based on somewhat outdated data, the Plan has limitations and there will be need for a more comprehensive and up to date study of the NCD by the year 2010. This is discussed more fully later.

OBJECTIVES

The objectives of this Urban Development Plan are to:

1. Provide a guide for broad land use and service infrastructure until the year 2015.
2. Provide a framework for the preparation of more detailed Local Development Plans.
3. Facilitate economic growth by encouraging land uses in appropriate locations;
4. Protect important and valued environmental features;
5. Incorporate social issues into planning decisions;
6. Provide opportunities for efficient transport and mobility;
7. Safeguard development from natural risk;
8. Allocate zoning for current "white land" areas to manage the growth of the city in a sustainable manner.

METHODOLOGY

The methodology of the Plan stems from Terms of Reference and the Office of the Chief Physical Planner's guidelines for the preparation of Development Plans. The latter is based on the concept of Survey, Analysis, Plan and Implementation.

Due to limited resources available the data and information collection stage relies heavily on the UDSS, which comprehensively provides the background and key characteristics of the Plan area. The drawback is that the information is ten years out of date. This is less important for some areas, for example, physical characteristics and environmental features, than others. The UDSS information has been reinforced in some areas by primary and secondary research.

The range of research activities included:

- data collection from various agencies;
- review of previous reports and publications;
- review of existing policies; and
- site inspections.

The analysis stage stems from the UDSS and is based on:

- identification of physical constraints;
- recent major development;
- future growth trends;

- identification of planning issues.

Plan formulation was based on the UDSS strategies for land allocation but reinforced with site inspections of all the peripheral “white land” areas of the Development Plan Area. The Plan formulation strategy was, therefore, based on:

- accommodation of growth;
- sensitive environmental conditions and features;
- traditional culture and development patterns;
- infrastructure service effectiveness;
- community service effectiveness;
- urban form and image;
- land use investment value and economic efficiency;
- ease of implementation; and
- evaluation of the peripheral areas.

The implementation stage was based on the OCPP’s guidelines and ongoing advice.

2.0 BACKGROUND

DEVELOPMENT PLAN AREA

The boundaries of the Development Plan area coincide with those of the NCD. The area is bounded by the Bogoro Creek and the Old Rigo Road in the east, the Laloki River in the north-east, Mount Seamu - Tovobada Hill – Huhundamo Hill in the north-west, a narrow sliver of land fronting Fairfax Harbour (including Napa Napa) in the west and the coastline (including 200 metres seaward) on the south. It also includes the off-shore islands of Daugo (Fishermans) Island, Daunagena Island, Gemo Island, Lolorua Islands and Manubada (Local) Island¹.

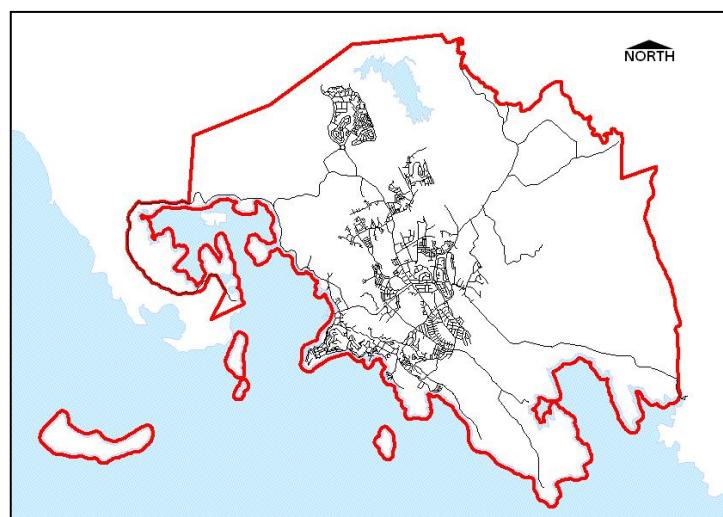
The region's dominant features include mountainous and hilly areas, coastlines, rivers and creeks combined to present a strong physical image and an area of great natural beauty.

A variety of landform types characterize the physical appearance of the NCD. These range from hill slopes and valley floors to beaches and mangrove swamps. Topographically the inland plains consist of a series of parallel distinct ridgelines, rising up to 200 metres above sea level, separated by flat or moderately rolling valleys, typical at an elevation of some 50 metres above sea level.

The poorly drained Waigani Swamp, consisting of waterlogged swamps and a shallow freshwater lake, and the Laloki River flood plain comprise the main wetlands and naturally flooded areas.

Port Moresby and Fairfax Harbours together with the nearby Bootless Bay form the Papua Coastal Lagoon which is separated from the open ocean by a barrier reef. The coastal marine environment is primarily made up of mud/sand flats along the eastern coastline, silt/mud flats surrounding Fairfax Harbour, mud/mangrove systems along the eastern and northern coastlines and the rock shore of southern and western coastlines.

The central sector constitutes the main formal built up area, including Badili, Boroko, Ensis Valley, Gerehu, Gordons, Tokarara, Hohola, Koki, Konedobu, Korobosea, New Town, Six Mile, Seven Mile (including the airport), Town (including the port), University, and Waigani. The peripheral areas to the east, north and north-west are relatively free from intensive built development.



Map showing development plan area

HISTORY OF PHYSICAL GROWTH

Port Moresby as the nation's capital has experienced rapid growth of urban development. Its choice as the capital was based on historical and strategic considerations. It is the main administrative, commercial and education centre of Papua New Guinea.

From the first colonial administration to just prior to World War 2, development was concentrated only at Ela (Town), Konedobu, Koki – Badili. After World War 2, it continued to grow and spread northward and eastward. An increase in the scale of administration activity, expenditure and employment, together with improvements in transportation and gradual lifting of restrictions on indigenous people saw a rapid transformation of Port Moresby. Suburbs of Kaugere and Hohola were developed for Papua New Guinean's employed in the civil service whilst Boroko and Korobosea residential areas were developed for the Europeans. Residential development spread towards the top of the hills between the harbour and Koki. Newtown became an industrial and residential centre. *Map 2 indicates the growth of physical development.*

In 1979, the government passed a decision for Waigani to be the seat of the National Government accommodating the National Parliament House as well as headquarters of all government departments and other major businesses. The intention to establish Waigani City Centre as the main administration and commercial area has not eventuated. The main reason was that the Port Moresby Town area was a more attractive location for new commercial office development and there was no policy in place to restrict such development there and re-direct it to Waigani. This was further compounded by service infrastructure limitations on the land at Waigani and irregularities over the issue of leases there.

The Town area still acts as the Central Business District for Port Moresby with support centres dispersed throughout the city at Koki-Badili, Hohola, Boroko, Gordons, 6 Mile and Gerehu. Within these built-up areas, there are areas of land which are largely unused, for example, Waigani City Centre, or underutilized, for example, large institutional sites like the Department of Works Headquarters at Waigani Drive, Murray Barracks. There are also industrial and commercial sites which are under-developed.

URBAN VILLAGES

There are seven traditional villages in the NCD which are generally located along the coastal strip. Four of the villages (Tatana, Vabukori, Hanuabada and Pari) are partly located on the water. The remainder, i.e. Baruni, Korobosea and Kilakila, are further inland.

The villages are represented by councillors on the Motu Koitabu Council which is an organization representing the interests of the Motu Koitabu villages and associated customary land within the NCD.

The villages now have access to limited basic services, such as electricity, water via (standpipes) and road access. The villages also have access to basic health services from nearby clinics or health centres and there are several primary and high schools near the villages that provide for their education needs.

CULTURAL ASSETS

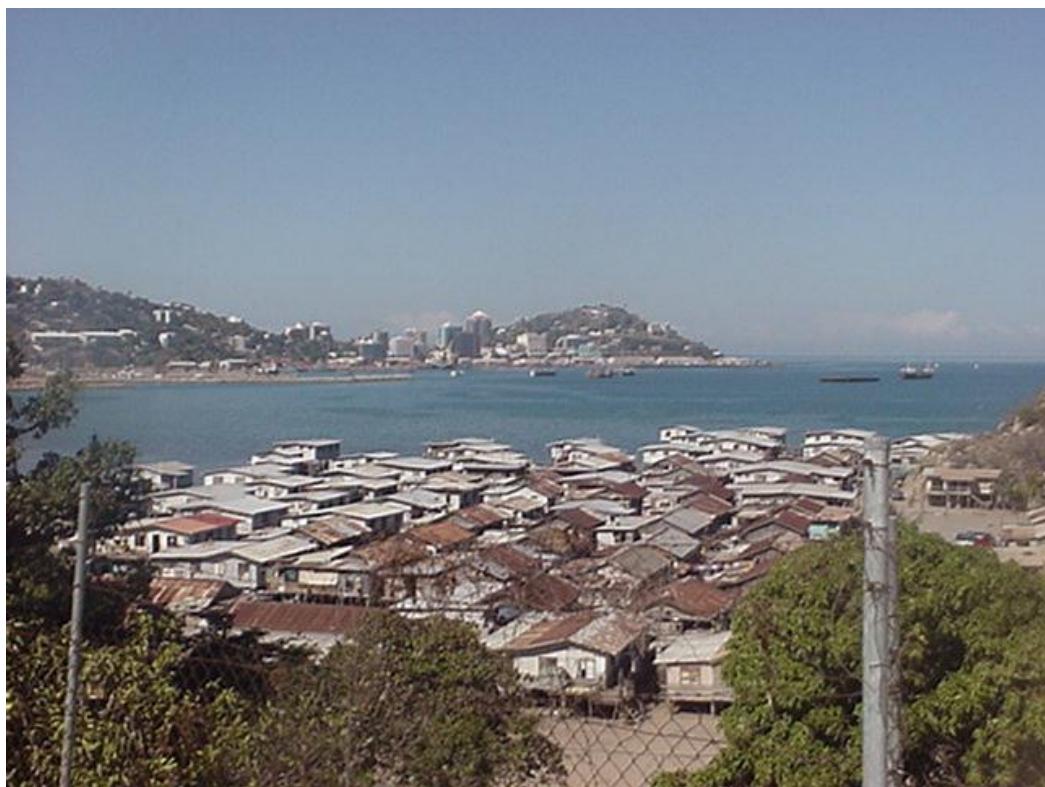
The NCD has a rich cultural tradition as it is the main melting pot of all cultures and ethnic groups found in PNG. The unique cultures and traditions of the Motu-Koita people give a strong identity to the NCD. As the built-up area of the NCD expands to accommodate the increase in population and economic growth, there is a threat to the traditional Motu-Koitabuan way of life. One of the indicators of this is the encroachment of squatter settlements onto customary land.

HISTORIC LANDMARKS

There are a number of historic landmarks in the NCD which are valuable components of the urban landscape. They provide a sense of place, pride and continuity. They need to be preserved to assist present and future generations in understanding the heritage of the area.

Key Issue No. 1:

- I(a) There are growing pressures to open up new areas in the NCD when there is still a significant extent of unused or under-utilized land within the built-up areas.
- I(b) The cultural identity and traditional way of life of urban villages in the NCD are fundamentally under threat, as are other historic landmarks.



Urban village overlooking the CBD above and an historical landmark below



Notes

1 National Gazette No. 69 – 22nd August 1996

3.0 POPULATION GROWTH

The urban population of Port Moresby has grown over a century, with less than a hundred residents (all Europeans) in the early nineteen hundreds (1900) to slightly over a quarter of a million in 2000.

Unlike other provinces, the NCD is wholly characterized by an urban setting, which means that factors affecting population growth in the NCD may not be the same as that experienced in the other centres of Papua New Guinea. It is important to note that the demographic situation varies widely between all centres depending on factors prevailing within the areas.

POPULATION IN BRIEF

Population – 254,158 (in 2000)
Average annual growth rate since 1980 – 3.6%
Sex ratio – 121 males per 100 females
Population density – 1052 persons per square kilometre
Average Household size – 6.0 persons

PNG 2000 Census, Final Figures (NSO)

POPULATION SIZE AND GROWTH

The NCD has a population of 254,158 in year 2000. It is one of the four fastest growing provinces in the country with more than 3.0% average annual growth since 1980. Since the earliest population censuses conducted in 1980, the population has grown by 4.6% within ten years (1980-1990) and 3.6% within twenty years (1980-2000). Table 1 shows the population growth from 1970 to 2000.

Table 1: Population growth for the NCD from 1970-2000

	NCD Population		
	Pop. At Start	Pop. At End	Average Growth Rate (AGR)
1970-1980	76, 507	123, 624	5.2
1980-1990	123, 624	195, 570	4.6
1980-2000	123, 624	254, 158	3.6

[Source: UDSS (1996) & NSO (2000)]

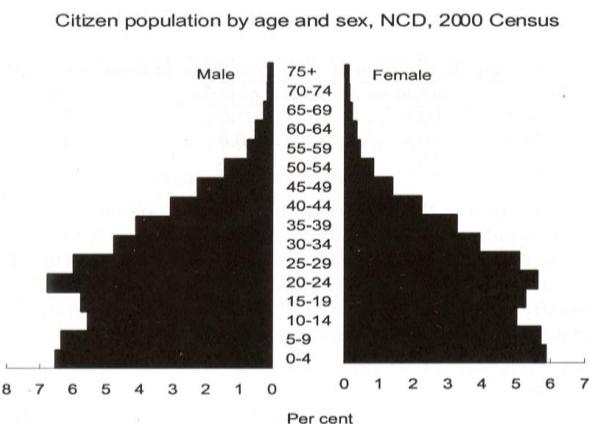
Age and Sex Structure

The age and sex structure of the NCD exposes a trend of historical events and conditions affecting the size of different age group. The information can be used to derive very important demographic and economic analysis for planning purposes.

The NCD structure is a typical of any developing nation with a large base population of 34% within the age group 0-14 of the total population. This shows that there is a potential of future growth of the NCD population. With the anticipated scenario, the implication of the future growth in the next decade in regard to social, economic and infrastructure development is the

absorption of the population into the existing basic services and infrastructure. Not only provision of basic needs of the population at large but also in improving the quality of life. The NCD is also faced with the challenge of making the best use of limited land for development requirements. Refer to figure 1.

Figure 1: Citizen Population by age and sex in 2000.



Key Issue No. 2:

- 2(a) As a result of having a young population, the NCD has a very high dependency ratio. It is important to note that the decline in the youth dependency burden can only be realised by a future decline in fertility. It will be important for policy makers and planners to take this into account in their plans for the future.

The average annual growth rates are also influenced by births, deaths and net migration as well as non-demographic factors such as different operation strategies used in the 2000 Census and under-enumeration rates in the 1990 Census¹.

MIGRATION AND URBANISATION

The population of PNG is predominantly rural. According to 'People Count' – *A Summary of the Population and Housing Census in PNG*, about 85 per cent of the nation's population live in rural areas. However, since 1966, the population in the urban areas have grown faster than that in the rural areas. In 1966, only 5.9 per cent of the population lived in urban areas. By 1990, the percentage had increased to 15.4. The fast growth suggests that urban areas have become attractive destination, possibly because of better job and education opportunities and better services.

In the 2000 Census, of the nearly 5.1 million citizens counted in private dwellings in PNG, 1 million (20%) had not been born where they were enumerated and were therefore classified as migrants. Of these citizen migrants, 37 per cent were counted in the urban area, which is about three times the proportion of the total population counted in the urban area.

Much of this movement was into the NCD and the few other urban areas. About 58 per cent of residents of the NCD were born in other provinces before

moving into the NCD, accounting for more than 100,000 residents who were counted as lifetime migrants. The life migrants are those people who were born in another place and resided in another place for the rest of their lives. According to 2000 Census, A total of 77,000 people were identified as net migrants living in the NCD during the time of the count.

PATTERNS AND TRENDS

The patterns and trends are useful indicators showing factors affecting the population growth. Fertility and mortality trends can be used over a period of time to draw important planning assumptions.

Fertility

The most recent estimated Total Fertility Rate (TFR) for the NCD shows a gradual decline from 5.0 live births per woman in 1980 to 3.0 live births per woman in 2000.

The NCD has experienced a low level of fertility rate as compared to other provinces. This suggests that access to information regarding family planning is available during ante-natal clinics and other health services for mothers. Also, the level of education may be a contributing factor in women preference for smaller size families leading to a low fertility rate for the NCD.

Mortality

The mortality situation in the NCD has improved since 1980. The Infant Mortality Rate (IMR) has improved from 35 deaths to 22 deaths per 1000 live births for the twenty-year period for both sexes. Similarly, the Child Mortality Rate (CMR) also has improved from 20 deaths to 5 deaths per 1000 live births for children between the ages of 1 and 5 years of both sexes.

This draws attention to the life expectancy of the NCD. The average life expectancy (e_0) at birth, for males improved from 56.1 years (1980) to 59.9 (2000), and also for females from 57.3 years (1980) to 59.9 (2000).

Overall, the NCD population is expected to live longer by five years as compared to the national average of 54.2 but this must not be seen in isolation to the emerging HIV/AIDS phenomenon. To date the NCD has the highest number of such cases.

Summary

According to the above two trends, the principal implications as far as future trends are concerned:

- (i) mortality rates will continue to decline, and
- (ii) a continuing decline in fertility rates

Therefore, the input of natural increase to overall growth is bound to be minimal and is unlikely to change very much.

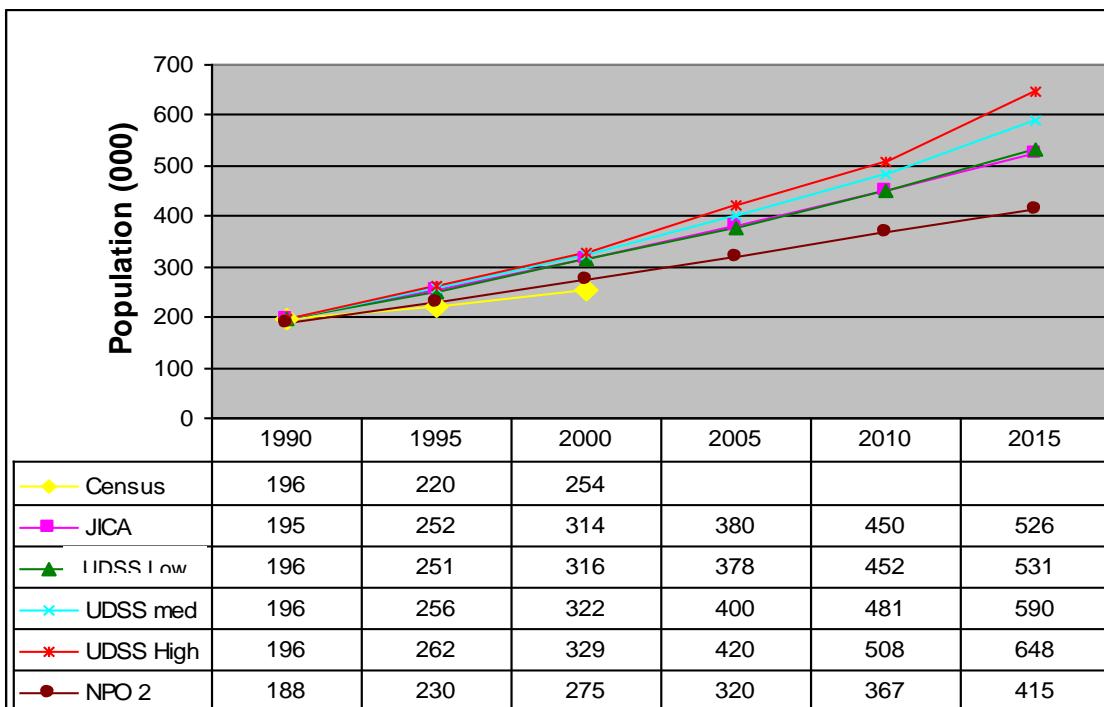
POPULATION PROJECTIONS

The population projections for the NCD have been based on the following studies; the Japanese International Cooperation (JICA) projection, National Planning Office (NPO) projection and the Urban Development Services Study. These population projections were made with the 1990 population as the base year to year 2015 for the UDSS.

According to which projections, the population of the NCD is expected to reach 531 000 through the low population growth scenario or 648 000 using the high population growth scenario. Figure 2 shows the different projections.

The current population trend in the NCD shows a likelihood of the NCD experiencing a Low Growth Scenario. However should the population reach uncontrollable proportions, the issues of containment and sustainable service provision will need to be addressed. These include the demands for housing, employment, infrastructure and services that will need to be managed to ensure the city's environment, economic and social values are maintained. There is certainly a challenge for physical planners on how to plan for development with the current population density of 1052 persons per square kilometre, which indeed is already putting pressure on development.

Figure 2: Population Projection



Source: UDSS (1996)

The 2000 Census figures fall below all the projections for the population of the NCD. They appear to indicate that the projected population for 2015 will not exceed the UDSS low growth scenario of 531,000 persons, unless there is drastic surge of immigration in the next 10 years.

There is a school of thought, however, that there was an undercount in the 2000 Census. If this is the case the population may possibly exceed 531,000 persons by 2015.

Key Issue No. 3:

- 3(a) The population of the NCD is expected to reach 531 000 through the low population growth scenario or 648 000 using the high population growth scenario. A population of 531, 000 persons by the year 2015 would be sustainable. The current population trend in the NCD shows a likelihood of the NCD experiencing a Low Growth Scenario. However should the population reach uncontrollable proportions, the issues of containment and sustainable service provision will need to be addressed. These include the demands for housing, employment, infrastructure and services that will need to be managed to ensure the city's environment, economic and social values are maintained.

Notes

- 1 National Statistics Office of PNG, Papua New Guinea 2000 Census Provincial Report - National Capital District, Author (Port Moresby), 2002, p5

4.0 OVERVIEW OF EXISTING LAND USE AND TENURE

EXISTING LAND USE

The NCD covers a total land area of approximately 25,000 hectares. Within this total land area, 60% belongs to the state while 40% belongs to the customary land owners.

The general existing land uses and the activities categorised under each land use are listed in **Table 2** below and shown on **Map 3**.

Table 2: Existing land uses and their activities.

Land Uses	Types of Activities
Commercial	Auto based retails, banks, doctor's surgeries, food stores, hotels, insurance, markets, offices, petrol stations, private gym, shopping centres, retail sales, etc
Commercial agriculture	Farms, forestry, livestock, nurseries, plantations, smallholdings.
Industry	General industry and warehousing.
Informal residential	Residential areas not formally subdivided, squatter settlements.
Mixed commercial and industrial uses	As indicated in the two categories above.
Open space	Botanical gardens, club pools, formal and open space, golf course, private open space, sports fields, stadia, wild life sanctuary, etc.
Public institutional	Churches, government offices, health centres, hospitals, institutions, police stations, schools, etc.
Public utilities	Airports, broadcasting sites, dams, drainage reserves, major roads, power reserves, power stations, reservoirs, rubbish dumps, sewerage ponds and treatment plants, telecommunication reserves.
Residential	Residential (single to multiple family housing), including planned settlements.
Traditional village uses	Clan or separate gardens, sungsing and community grounds, traditional cemeteries and spiritual sites, villages.
Unused land	Vacant customary land used for hunting and not for gardening, vacant government land without identifiable uses;

Source: UDSS (1996) with minor amendments by Regulatory Services, NCDC (2006)

LAND USE PATTERN

As previously mentioned most of the central areas of the NCD have become built up as physical development has taken place. Residential land use is dominant extending from Gerehu, the Rainbow Estate and Morata in the north, past the suburbs of Ensi Valley, Korobosea, Waigani, Gordons and Hohola to Boroko, Korobosea and Gabutu in the south. The high cost and exclusive housing area of Port Moresby Town is also a prominent residential component of the city.

Interspersed with these housing areas are important institutional areas like Gerehu National High School, the University of PNG, the PNG Institute of Public Administration, Waigani government offices, Four-Mile government & statutory authority offices & depots, Murray Barracks and the Port Moresby General Hospital. Schools, churches, police stations, and clinics are widely dispersed throughout the city.

The main industrial areas are located at Gordons, Six-Mile, Gerehu and Town, whilst major individual developments have taken place at Motukea Shipyard and Napa Napa Oil Refinery.

The major commercial areas are at Town (predominantly offices), Boroko, Gordons, Waigani and Gerehu. A recent trend has been the establishment of supermarkets with easy access to the Poreporebada Highway, for example Andersons Town, Boroko Foodworld and Stop N Shop Waigani.

In the north-eastern peripheral area there are large institutions like the Bomana Police College, the Bomana Correctional Institution Services, and the Pacific Advent University and Catholic educational establishments.

The main recreational/sports areas are the John Guise Stadium at Waigani, the Hubert Murray Stadium at Konedobu, the Boroko East complex, Unagi Park at Gordons, Pidik Park at Five Mile, Paga Hill and Ela Beach in Town.

The pattern of urban growth for the NCD has been shaped by a range of factors, including national government decisions, the improved road network, difficulties in obtaining land for planned development,. Additionally, NCD as the prime centre for administrative and commercial functions has tended to act as an incentive for people to move to the region.

In recent years there has been consolidation of existing built-up areas, through infill development and the redevelopment of existing properties, whilst some new development has occurred in the peripheral areas, especially unplanned settlements. These are becoming more of a dominant land use in the NCD because the formal housing sector cannot accommodate the increase in population.

Due to the dominance of residential land uses, activities have been categorized into residential and non-residential uses. Residential uses include non-traditional settlements and urban villages while the non-residential uses are; commercial, industrial, civic and institutional, active recreational and infrastructural services. (**Refer to Table 3).**

Table 3: 1995 built up area and 2015 projections

Existing Land use	1995 Land Area in use (ha)	Additional land requirements by 2015 (ha) ¹
Residential	2 226	3, 013.0
- Non traditional	1233	
- Traditional	993	
Settlements	684	
Villages	309	1,424.5 ²
Non-residential	2807	
Civic and Institutional Uses	1 682	3,133.6
Commercial	188	550.6
Industrial	241	762.5
Infrastructure and Public Utilities	1160	2,899.9
Open spaces - active Recreation	325	760.2
Open spaces - preserved	3272	4316
Non-urban area		
Commercial agriculture	226	803.0

Key Issue No. 4:

- 4(a) There are increased demands for re-zoning and non conforming uses in certain locations due to the lack of new land being advertised by the State.
- 4 (b) Unplanned settlements are becoming a dominant land use in the NCD.

LAND TENURE

Approximately 15,200 hectares, or sixty per cent, of the total land area of the NCD is alienated or State land³. The Land Act 1996 allows the government to control and manage land through the establishment of a Land Board and through the authority of the Minister for Lands & Physical Planning. Powers and responsibilities are shared between the Minister, the Land Board and the Departmental Head. As a general rule the Land Board considers applications for leases and makes recommendations to the Minister.

Land may be exempted from advertisement by the Minister but only in exceptional and limited circumstances. The Minister has additional powers over matters which include the acquisition of customary land, compensation claims, the direct grant of leases and licenses, the forfeiture of leases and the onward sale of developed land.

A review of the gazetted agendas for Land Board hearings over recent years will reveal that very little land in the NCD has been advertised for tender in accordance with the Land Act. More often than not vacant State owned land is exempted from advertisement and granted to a single company or individual. Many of the exemptions are of dubious legality. This deprives interested potential developers of the opportunities to apply for the land.

Approximately 9,800 hectares or forty per cent of the total land area of the NCD is in customary ownership⁴. State land in the NCD has been quickly taken up with urban expansion, including informal settlements.



Customary land (overlooking Taurama Beach) above and State land (Waigani institutional area) below.



Although there are opportunities for infill and consolidation of existing development on State land it means that most of future urban growth will have to be concentrated on customary land. Although this is a highly sensitive and

controversial issue there exists a considerable opportunity for customary landowners to participate in the urban development process in partnership with the national government, the NCDC, statutory authorities and the private sector.

There is more information on land tenure and mechanisms for the release of land in Appendix A. **Map 4** shows the distribution of customary and alienated land throughout the NCD.

Key Issue No. 5:

- 5(a) Very little State land in the NCD has been advertised for tender in recent years. Although partly due to dubious land administration practices it is also an indicator that the unused State land is being used up.**
- 5(b) Substantial proportions of prime developable land are being held back from development as they are under customary land ownership. At present, this constitutes a significant constraint to the mobilization of available land for urban development.**

Notes

1 The table is a summary of an elaborate matrix developed by the UDSS for the NCD. The figures were derived using the Low Growth scenario population projections of that study.

2 The UDSS combines settlements and traditional villages under traditional housing. This Development Plan considers settlements as part of the non-traditional housing.

3 Wilbur Smith Associates, Shankland Cox Limited & Frame Harvey West & Maso, Urban Development and Services Study for the National Capital District – Urban Development & Services Plan – Final Report – Vol 3.10, Author, 1996, p26

4 Ibid

5.0 INFRASTRUCTURE SERVICES

WATER SUPPLY

The authority responsible for water provision in the NCD is Eda Ranu. It is responsible for the planning, development and management of the whole system.

Eda Ranu provides water to quality according to the World Health Organisation Standards. Raw water enters the Mt Eriama Water Treatment Plant. Under a *Build-Operate-Transfer (BOT)* Concession, PNG Water Ltd., a separate private water supply company undertakes water treatment at Mt Eriama.

Under Eda Ranu's Build, BOT Expansion Programme (1997 – 2019)¹ major works are proposed to improve water supply and quality in the NCD, and include:

- Upgrade Mt Eriama Water Treatment Plant to have a treatment capacity of 184 million litres per day of water;
- Construct Rouna 4 Intake works and construct 1,000 millimetres diameter raw water mains over 13 kilometres to Mt Eriama;
- Construct 13.6 kilometres of transmission mains to deliver treated water to the different service reservoirs around the city;
- Construct 13.5 kilometres of distribution mains in various service reservoir zones; and
- Upgrade reservoir inlet/outlet pipe work and replace reservoir roofing.

At the time of the preparation of this Plan:

- The laying of all new trunk lines have been completed and are in use currently;
- The upgrading to the Water Treatment Plant at Mount Eriama was completed in 2005;
- A majority of the planned distribution pipelines constructed under the BOT programme have been completed;
- The raw water pipeline from Rouna 4 to Mt Eriama and associated pumping works below Mt Eriama are also set for completion.

Eda Ranu anticipates that upon handover in December 2006, the water supply system will have the capacity to deliver up to 184 million litres of water per day which is adequate to meet the city's demand up to 2019².

Key Issue No.6:

6(a) The UDSS plan states that the water source capacity dictates that the NCD's population should be capped at the 530,000 people that it expects by 2015.

SEWAGE DISPOSAL SYSTEM

Eda Ranu is also responsible for the planning, development and management of the sewage disposal system.

Under the Environment Act 2000, the *Department of Environment and Conservation (DEC)* issues licenses for the discharge of pollutants into the environment, based on Environment Impact Assessment reports of major projects. Licenses have been issued to Eda Ranu for sewer outfalls. Permits are issued by the DEC for all outfalls and overflow pipes. The permits issued to Eda Ranu provide discharge fee rates and discharge quality and quantity parameters of effluent.

The majority of the trunk sewers have additional capacity, but the limits of that capacity are finite. Those trunk sewers which will definitely require augmentation to meet the demands of the population by the Year 2015 are identified as those trunk sewers feeding the Waigani Moitaka Stabilization Ponds, the trunk sewers serving the Gordons 5 area, the Boroko Drive Sewer servicing the Gordons South Area and the Waigani Drive Sewer serving the Hohola North area³.

A number of trunk sewers are overloaded or flowing at capacity. As the NCD reaches a population of 530, 000 by the Target Year 2015, much of the additional population will be in-fill in the Waigani-Boroko-Gordons-Airport area, and major augmentation of the trunk sewers serving these areas will be necessary.

There are no sewerage systems serving settlements and urban villages.

Key Issue No. 7:

- 7(a) A significant proportion of the residents of NCD do not have access to the Sewerage system.**

STORMWATER DRAINAGE SYSTEM

The Port Moresby Urban Stormwater Management Study completed in 1995⁴, found that local failures are due to a number of undersized or blocked culverts at intersections.

Maintenance of the drainage system is hindered by erosion, solid waste and sediment build-up for example in the open channels throughout the city.

ELECTRICITY SUPPLY

Hydropower generation and conventional diesel fuel electricity service are provided by PNG Power Limited.

Power generation comes from three (3) sources:

- Rouna hydro-electric power station (4x60MW) – PNG Power (*Outside the NCD in Central Province*);
- Moitaka thermal power station (2x12MW) – PNG Power; and
- Kanudi thermal power station (4x7.5MW) – Private (Hanjung power station)

Generally power generation has not kept pace with development. Connections are usually made on a demand basis. Power disruptions and load shedding sessions are frequent whenever any of the sources of power generation experience problems.

WASTE DISPOSAL

Within the NCD, solid waste is produced from “virtually every corner of the district”, with the largest volumes coming from the communities of Badili, Boroko, Ela Beach, Downtown, Gerehu, Gordons and Korobosea (UDSS, 1996). These communities are well dispersed and waste removal vehicles require long travel distances to reach the landfill sites.

The NCD presently has 2 active landfill sites: Baruni Dump, which is being actively operated as a burning dump, and the Six Mile landfill. The Baruni site is located on Baruni Road, approximately 2.8 kilometres south-west of the Gerehu Roundabout. The dumping area is 15 metres above the adjacent Baruni Road.

At both the Baruni and 6 Mile Dumps, there is a notable lack of management of the dump sites. Compaction is poor, there is no cover and the sites are continuously covered by dense clouds of toxic smoke. Additionally, there is no apparent monitoring of site run-off, either as to content of the run-off, its quantities or the potential for short or long term hazards to downstream users or residents⁵.

Key Issue No. 8:

- 8(a) **Both the Baruni and Six Mile Dumps are currently being poorly managed and the methods of operation need major improvement.**
- 8(b) **As the NCD expands there is an increase in the level of pollution of land, waterways and beachfronts, which is threatening its natural environment. This is caused by the irresponsible disposal of rubbish and human and animal waste as well as air pollution from fires and burning of rubbish.**

TRANSPORT

A fundamental facet of economic growth and development is the establishment of an efficient and effective transport system. Such a system also contributes to the well-being of the community by facilitating access to the full range of urban land uses and associated activities, especially commercial, civic, cultural, sporting, recreational and other social activities.

Transport infrastructure is an important factor that contributes significantly to the economic growth of the NCD. Proper road networks, providing access to and between major designated commercial, industrial and other high activity areas, help meet the needs of the respective businesses.

The current transportation infrastructure system in the NCD consists of a road network that services private and public transport as well as pedestrian traffic, an international airport and major port facilities.

Road Network

The NCDC administers and maintains all of the roads throughout the NCD, i.e. the designated national roads and those which are the NCDC's direct responsibility. A draft Memorandum of Understanding has been prepared for the transfer of assets of the National Roads administered by the national Department of Works to the NCDC. It is understood that since 1993, the NCDC has improved and maintained the National Roads without any financial assistance from the national government.

The road system consists of approximately 400 kilometres of paved roads which are classified into the following hierarchy:

- i) Arterial Roads
 - Highways
 - Distributors
- ii) Minor Roads
 - Collectors
 - Access roads and
 - Footpaths

The differences between the road types relate to their primary function. Arterial roads cater mainly for through traffic, whilst minor roads primarily provide access to adjoining land uses.

There are a number of roads within NCD not gazetted as roads, including the Poreporena Highway. Conversely, there are some areas where gazetted roads are shown in the cadastral database, but which do not exist either as a result of incorrect cadastral information, illegal development or planned roads that were never constructed.

The overall arterial road network in the NCD consists principally of 4 lane roads and 2 lane undivided roads. Refer to Map 11.

Pedestrian facilities through the NCD are generally inadequate. Primary difficulties confronting pedestrians involve conflicts with vehicles at major road crossing points, and the absence of adequate roadside walkways in major commercial and market areas.

Key Issues No. 9:

- 9(a) Currently there is no direct route connecting Magi Highway, via Gerehu, to Fairfax Harbour.**
- 9(b) There are inadequate facilities for pedestrians throughout the NCD.**

Public Transport

Public transport, in the form of *Public Motor Vehicles (PMVs)* provides service for the daily needs of a very large segment of the population. Buses, minibuses and taxis are operated by the private sector. Control over the system is maintained by the Department of Transport through the National Land Transport Board, which regulates the number of vehicles licensed to operate and the maximum fares. Current problems include an alarming number of unroadworthy PMVs on the roads, irresponsible driver behaviour and the non-completion of bus routes.

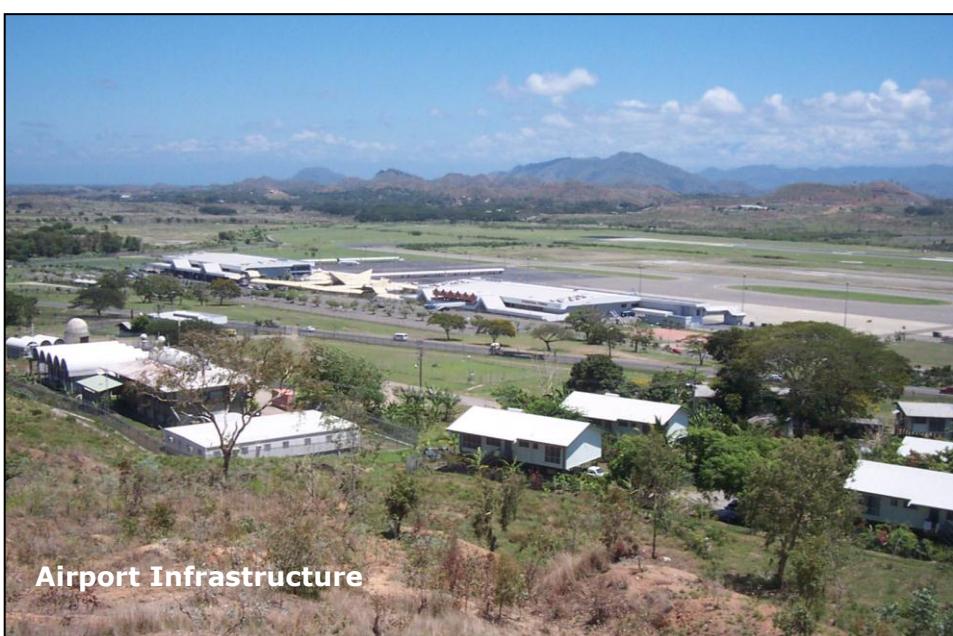
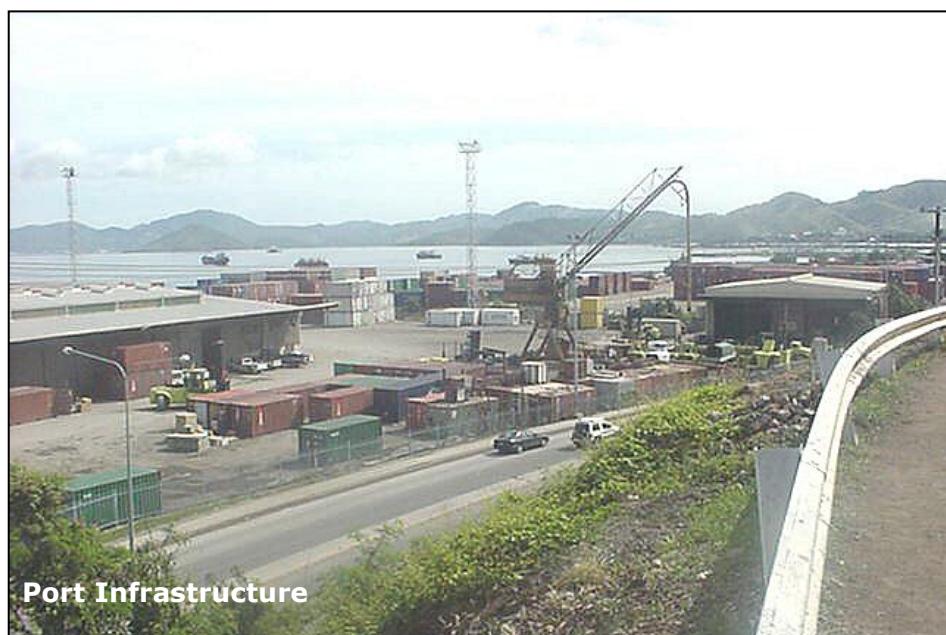
Port

Port Moresby Harbour serves as the second largest harbour in the country with daily vessels transiting to and from other regions of the country and the world. Port traffic falls into two major categories – international shipping and coastal shipping to other locations in PNG. Trade through the port consists largely of imports and exports (from plantations) from domestic and overseas vessels. Recently with the introduction of additional passenger vessels operating to and from Port Moresby, there is a need to upgrade passenger transiting facilities at the wharf.

Despite recent uncertainty about the future of the port, it is accepted that the port will probably remain in its existing location in the foreseeable future. The lack of a financially feasible alternative supports this position.

The future development opportunities of the port are constrained, with a lack of possibility to expand landwards. Environmental acceptability of further reclamation, and its economic feasibility, are further restrictive factors.

Should future relocation occur, it would open up a major planning opportunity. However, this possibility could only occur in an environment of radical development and economic growth⁶.



Key Issue No. 10:

- 10(a) The Port provides for mostly containerized operations and a major constraint identified is the lack of cargo/container storage and handling areas. It is located in the Town area where it must share urban space with many other land uses. This factor constrains room for expansion to meet the growing demand.**

Airport

Jacksons International Airport, located at 7 Mile, is the most important airport in PNG, serving as the gateway to the rest of the country. The national airline, Air Niugini, services the main urban centres of the country from this airport and connects it to international destinations, such as Australia, Singapore, Japan, Philippines and other Pacific Island countries. Other third level airlines also operate out of Port Moresby to smaller centres. Airlines PNG also connects to Australia from Port Moresby.

There is scope for expansion of existing runways in a south-easterly direction, if the need arises.

It is important that land use and physical development is controlled in the flight paths of aircraft. Buildings of a certain height, land uses which attract birds and uses or buildings which generate smoke all pose serious hazards to air operations.

Key Issue No. 11:

- 11(a) The flight paths of aircraft should be kept free of all new built development and land uses which attract birds or generate smoke, in the interests of safety.**

Notes

1 "Eda Ranu keen on providing the best", Post Courier – Special Supplement for World Water Day, March 22, 2006

2 Ikupu. D, personal communication, 29 June 2006

3 Wilbur Smith Associates, et al.Urban Development and Services Study for the National Capital District - Urban Development and Services Plan - Final Report – Vol 4.15, Author (Port Moresby), p 203

4 Snowy Mountain Engineering Cooperation Limited (SMEC), Port Moresby Urban Storm water Management Study, Author (Port Moresby), 1995

5 Wilbur Smith Associates, Shankland Cox Limited & Frame Harvey West and Maso, Urban Development and Services Study for the National Capital District - Urban Development and Services Plan - Final Report – Vol 4.15, Author (Port Moresby), p 365

6 National Capital District Commission (NCDC) & Snowy Mountain Engineering Cooperation Limited (SMEC), Port Moresby Town Local Development Plan (POMTLDP), Analysis Plan Implementation- Vol 1, Author (Port Moresby), December 2005

6.0 PHYSICAL AND ENVIRONMENTAL CONSTRAINTS

TOPOGRAPHIC CONSTRAINTS

The main topographic constraints to development in Port Moresby are steep ridges and the low-lying swampy depressions. Most out expansion is likely to take place in the better-drained valley floors and on the foot slopes.

There are however, development pressures to build on areas above the 90-metre contour line around ridge lines of surrounding hills.

SLOPES AND STABILITY

Some areas are more susceptible to slope instability or reduced bearing capacity, particularly areas of cut and fill on slopes greater than 15% and hill slope deposits. On both Paga Hill and Touaguba Hill, extensive development has taken place with building pads cut into fractured, steeply dipping rock. Such sites are vulnerable to failure not only from even minor seismic activity but also from movement along slippage planes lubricated with stormwater or sewage¹.

Additional factors affecting development include the existence of several fault lines in the Development Plan Area. These include the Baruni Fault, Tatana Fault and the Koki Fault zone in the coastal region and the Bogoro Sheers zone further inland. Unstable plains exist along Laloki River and development must be discouraged in its immediate vicinity.

In-depth investigation will be undertaken on slope stability during the preparation of Local Development Plans. Areas of concern include Paga Hill, Touaguba Hill, Saraga Hill and Waigani Heights.

Key Issue No. 12:

- 12(a) Squatter settlements located on ridge tops and sides of hills in the city have the tendency to cause soil erosion. Compounding this is seasonal gardening on hillsides undertaken by settlers. Gardening on hill slopes results in the removal/destruction of the existing vegetation on site and increases the likelihood of soil erosion and sediment build-up in low-lying areas.**
- 12(b) New residential developments on hill slopes, especially Paga Hill and Touaguba Hill may require professional advice prior to their construction.**

SOILS AND SUBSOILS

Soil types in the Development Plan Area consist of lithosols with minor gravelly clay soil, brown clay soils, texture contrast soils and dark clay soils that normally pose no constraint at all; but a combination of brown clay contrast soils with minor lithsols and dark cracking clay soils may generally create certain moderate engineering concerns.

However, the UDSS also cited reports of "moderate to serious swelling potential" in some valley regions of the NCD. In those instances pier and beam foundations have been used to a depth of up to 4 metres.

Poorly drained valley floors underlain by clay soils have been identified as one of the contributing factors towards road pavement failures in the NCD.

Key Issue No. 13

13(a) Heavy structures and road construction along the valley floor areas of NCD require geotechnical investigation in order to achieve a proper design of the foundations and bases. The Geological Survey Section of the Department of Mining confirms that there have been many problems in foundations of structures, buildings and roads in these areas.

DRAINAGE CONDITIONS

Most of the inland surface run-off discharges into Waigani Swamp which is an area of approximately 300 hectares of water. Much of this area is normally inundated all year around. There are other minor inland catchments areas which are inundated seasonally.

Some of the inland areas drain into the Laloki River on the northern-eastern boundary of the NCD. The coast of the NCD drain directly into the sea.

ENVIRONMENTAL FEATURES & CONSTRAINTS

The physical features of the Development Plan area have already been described earlier in this report. Table 4 describes important environmental features of the area and implications for the Urban Development Plan.

Table 4: Features that reflect the presentation of fauna, flora and land formation in the promotion of scenic and recreational landscape resources²

CATEGORY	DESCRIPTION
The urban waterfront	Areas currently used for urban purposes such as wharves for container and passenger ships and as yacht berths. This covers waterfront areas from Napa Napa to Konedobu, Paga Hill and the Koki area.

Intense active recreational areas	Areas such as the waterfront and beaches actively utilized by the public. These areas include Ela Beach, Taurama Beach and areas around Walter Bay and the Port Moresby Harbour
Recreational scenic areas in relatively natural state	Areas within the NCD that have the potential for scenic and recreational purposes, which are currently not fully utilized. These include the outer shore islands of Daugo, Hanudamava Lolorua and Manubada. On the mainland, scenic areas are those on hilltops or ridges overlooking lowlands and the coastal areas.
Areas in relatively natural state	Areas that are currently in their natural state which should be preserved. These areas are basically the coastal areas that are covered by mangrove swamps that extend from Napa Napa to Taurama coast and the meandering banks especially the Joyce Bay area and the Laloki River area. The likely preservation of these natural resource locations from intense development pressures should be enforced
Scenic areas/passive open spaces	Areas that have scenic and recreational value. Ridgelines of surrounding hills provide a basis for scenic areas. These areas are currently utilized as "look out" points like Paga Hill and Touaguba Hill, Waigani and Koki Heights. All visually prominent hill top sites are to be kept free from development. The criteria used for selecting the sites were largely aesthetic, and the issues of soil stability, land slips, erosion or ecological constraints are evident.
Wetlands (water resource catchment areas)	These areas provide the accessibility to water and potential for groundwater exist as an alternative source given the water situation in the NCD. There are no places in the NCD other than Waigani Swamp and Laloki River that are significant water catchment areas. These areas must be protected from contamination and potential impacts from any development

Land reclamation, as in the current expansion of the Port facilities, dredging in Fairfax Harbour and the discharge of raw sewage are detrimental to the off shore reefs. Limits should be imposed on these practices which would restrict future growth in the coastal strip area³.

Key Issue No 15:

- 15(a) Open spaces and potential recreational areas have increasingly been sacrificed to accommodate built development by being rezoned for other uses.**
- 15(b) The regulated standard for open space provision four (4) hectares per 1,000 people has not been applied to new residential developments resulting in an under provision of facilities and space for recreation and leisure activities.**
- 15(c) The mangrove swamps along the coast are environmental assets under threat and they are in need of preservation.**
- 15(d) Land reclamation, dredging and the discharge of raw sewage need careful control to preserve the off-shore reefs.**

Noise pollution

Noise levels can have a significant impact on the performance of certain urban functions, for example, hospitals, schools and churches and to the health, productivity and amenity of the resident population. The avoidance of severe

noise levels from certain uses, for example, the airport, the main wharf and entertainment centres, is in the interests of positive development.

Standards set and enforced for maximum tolerable levels will determine the degree to which noise generating uses will constrain certain types of development or require certain design measures to be introduced, for example, the soundproofing of buildings.

Key Issue 16

16(a) Land use planning and building design are influenced by noise levels generated by specific activities and land uses.

Notes

1 Wilbur Smith Associates, et Urban Development and Services Study for the National Capital District – Physical Development Constraints- Final Report – Vol 3.6, Author (Port Moresby), p6

2 Ibid, Vol 3.10, p192

3 Ibid, Vol 3.9, p73

7.0 HOUSING AND SOCIAL SERVICES

HOUSING

Based on the 1980 Population Census, the NCD housing stock in 1980 was estimated at 19, 529 units. In 1990, the 1990 Population and Housing recorded a total of 27, 338 units, indicated a growth of 3.4 percent annually over 1980. Total housing stock in 1995 was estimated to be 36, 560 units. In the 2000 Census, total households amounted to 35, 188 which is less than the estimated figure in 1995.

In 1995, the central and coastal area had the highest concentration of dwelling units. In 2000, the central area continued to have the highest concentration of housing stock at Boroko, University/Tokarara and Waigani. The areas of Huhunama/Tovabada and Napanapa/Daugo Island have the least concentration of housing stock.

Housing land requirements detailed in the UDSS are based on projected population growth and current densities for both traditional and non-traditional sectors. Under a low growth scenario, a total of 1,978.2 hectares of residential land will be required in the NCD to accommodate both traditional and non-traditional housing needs. A high growth will need a total of 2,638.2 hectares of residential land by 2015.

Key Issue No. 17:

- 17(a) Housing is the major urban land use and it is therefore essential to make adequate provision for it. Provisions must allow for a variety of housing types and densities in areas near concentrations of employment, shopping and recreational opportunities and in areas with good public transport services. (Refer to Desired Outcome (d) (i).)**

SETTLEMENT GROWTH

After the liberalisation of many employment and housing restrictions that existed prior to World War 2, the migrant population continued to increase substantially. Ill-enforced housing regulations together with high cost housing rentals and employers' inability to provide accommodation for their employees pushed a substantial portion of the urban population to construct their own dwellings on both customary and alienated land. This was the beginning of the growth of many squatter settlements.

Table 5 attempts to show the steady rise of settlements and the different terminology used to describe them over the years. This is possibly a reflection of the complex issues involved in dealing with settlement issues.

Table 5: Settlement development over the years

Source: Oram, 1976 ¹	Years	Number of migrant settlements		
	1950	14		
	1964	18		
	1970	40		
Source: UDSS, 1996 ²	1995	Planned (formal) settlements	Unplanned (informal) settlements	
		26	48	
		TOTAL		
Source: NCD draft Settlements Strategy, 2005 ³	2005	Formal settlements	Squatter settlements	Motu Koitabu settlements
		21	32	36
		TOTAL		89

Factors giving rise to the settlement growth include in-migration, an absence of clear settlement policies, high housing rentals and the lack of provision of affordable or low-income housing schemes.

Many squatter settlements are established on vacant prime developable land. Some of these areas have been zoned for various specific categories of development and have now been besieged with settlements. Settlements have also developed without taking into consideration environmental factors which may result in the use of environmental preserved land as well as other reserved areas. Additionally, buildings erected contrary to Building Regulations are a safety and fire hazard, putting peoples' lives at risk.

Landowners or lessees of any prime vacant developable land should take the responsibility of protecting their land from squatter settlements. They must also ensure that any development on their land complies with the legal requirements to attain improved management of settlements. If this approach is not taken, settlements will continue to spring up on vacant developable land and this is likely to impede formal development. Once established settlements are difficult to manage and control because of the lack of clear government policies and enforcement action under the existing legislation.

This issue is further addressed in the draft NCDC Settlements Strategy (2006-2010) that has been prepared by the Commission's Strategic Planning Section of the Department of Regulatory Services.

Key Issue No 18:

- 18(a) An analysis of the 2000 Census Unit figures shows that out of the total population of the NCD, which is 254,158, there is a total of 93,487 persons living in settlements, which amounts to 37 % of the total population of the NCD.**
- 18(b) Continuing uncontrolled spread of unplanned settlements is jeopardising plans for formal development.**

EDUCATION

The National Department of Education oversees all education matters in the country, including tertiary education. Education policies are formulated at the national level and are implemented in all provinces, including the NCD. The main role of the NCDC Division of Education Services in the NCD is in planning, budgeting and staffing of education provision. It is involved in the development of existing school sites, together with the planning and provision of new schools.

In the late 1990's the Government introduced a new education system called the New Education Reform. The new education restructure became effective in the late 1990's. By 2000 all provinces including the NCD began implementing the new system.

The shift from the former education system to the restructured system introduced three divisions of three grades from preparatory to elementary one and two. It extended the primary grades from 6 to 8 as upper primary and 3 to 5 as lower primary and secondary grades from 9 to 12. The reformed system helps +to reduce the number of dropouts and increases the number of school students. This situation will now increase the demand for more classrooms. Hence, new school sites and sites for expansion of existing classrooms will be needed.

The UDSS low growth scenario will require 62.4 hectares while a high growth scenario will require 88.8 hectares to accommodate the increasing number of students by the year 2015. However, obtaining land is one of the major constraints faced by the Education Department in NCD. Private schools have supplemented the government-funded schools in accommodating the school age population.

Key Issue No 19:

- 19(a) The acquisition of new education sites is a complex and lengthy process.**
- 19(b) There is a need for an equitable distribution of school sites throughout the residential neighbourhoods of the NCD.**

HEALTH

Public and private health-care services are available for the residents of the NCD and, in addition, there are traditional medicine practitioners. These systems may sometimes overlap.

The UDSS contains detailed information on the types and levels of service available in the NCD.

The Port Moresby General Hospital (PMGH), Mile, provides comprehensive diagnostic and curative services. It acts as the national referral hospital, has specialised clinical services and deals with emergencies.

There are four (4) private hospitals:

- Pacific International Hospital, located at Four-Mile;
- Mola-Lam Private Hospital, located at Three-Mile;
- Port Moresby Medical Service (formerly known as Dr. Webb's Private Hospital at East Boroko); and
- St Mary's Medical Centre, at Four-Mile.

The large private *Motor Vehicle Insurance Limited (MVIL)* hospital, constructed adjacent to the PMGH, has not been put to use and remains unoccupied with its future in doubt.

There are twelve government-run urban clinics in the NCD, although three of these have ceased operation. The Gordons Clinic was closed due to structural problems whilst the Morata and Tokarara Clinics experienced vandalism and theft. This means that there are, effectively, nine urban clinics currently in operation. These are located at Badili, Gerehu, Hohola (St Theresa), Kila Kila, Lawes Road, Nine Mile, Pari, Six Mile and Vabukori.

Residents can also access health care services from ten other institutional clinics, as listed below:

- Air Niugini;
- Bomana Correctional Institution Services;
- Bomana Police College;
- Idubada Technical College;
- Mobile Clinic for schools;
- Murray Barracks;
- PNG Institute of Public Administration;
- Taurama Barracks;
- Telikom College; and
- University of Papua New Guinea.

Altogether there is a total of 19 clinics to service the current population.

Table 6 shows the number of urban clinics required under the Low and High Growth scenarios.

Table 6: Recommended required number of urban clinics using Low and High growth population scenarios

Year	Low Growth estimated population	No. of urban clinics	High Growth estimated population	No. of urban clinics
1995	251,000	10	262,000	10
2000	316,000	13	329,000	13
2005	378,000	16	420,000	17
2010	452,000	19	508,000	21
2015	531,000	22	648,000	25

According to the UDSS an ideal standard of hospital provision would be one per 80,000 to 90,000 persons. Bearing in mind that the PMGH serves not only the NCD but also parts of Central Province there appears to be a serious under provision. The UDSS concluded, however, that a second general hospital would not be required in the NCD before 2015. This was based on the fact that the PMGH site could accommodate an additional medical wing to allow a total capacity of 1,200 beds. It also took into account the growing number of private hospital beds.

Bearing in mind the present shortfall and the growing incidence of HIV/AIDS, it is considered advisable to identify a site for a second general hospital in this Development Plan.

Whilst the Department of Health's standard of provision is one urban clinic per 20,000 people, the UDSS applied a standard of 25,000 persons per urban clinic. Based on this there is a shortfall of government-run urban clinics. If institutional clinics are included there appears to be adequate provision of urban clinics (19 in all) to service the current population, even if the high growth rate is assumed. The drawbacks of the institutional clinics are, however, that they provide services for a limited clientele and their distribution is not related to the spread of the population.

Healthcare facilities are supplemented by private clinics.

Key Issue 20:

20(a) As the city expands further urban clinics will be required in suitable locations in relation to the growth of new residential areas. There will also be a need for a second public hospital.

POLICE SERVICES

Law enforcement within the NCD is provided by the Royal PNG Constabulary. The lack of peace and good order within all levels of the NCD's community has been of great concern over the years and has been seen as a constraint on development in the NCD. The responsibility of a law-enforcement agency is to ensure that people at all levels of the community are given the opportunities to live in a peaceful area, not only inside their own residential area, but outside it as well.

There are currently eight District Police Stations in the NCD at Badili, Boroko, Gerehu, Gordons, Hohola, Six Mile, Town and Waigani. These stations are generally run-down with the exception of Gordons and Waigani, which were recently upgraded.

Recent initiatives by government, in conjunction with non-governmental organisations, have seen the emergence of policing at community level with the introduction of "cop shops"⁴ at strategic locations throughout the city. These are located at Boroko, Gerehu, Gordons, Hohola, Taurama Foodland and Manu Auto Port.

The UDSS recommended a standard of one District Police Station per 30,000 persons and this is adopted in this Development Plan.

Key Issue 21:

21(a) Some major residential areas lack police facilities and most existing police stations require upgrading.

FIRE SERVICES

In the NCD, the PNG Fire Service is responsible for the planning and implementation of fire protection measures. Provision of fire service in 1995 was through the four (4) operational stations each with a fire engine and one rescue unit. The stations are located at Boroko, Gerehu, Waigani, and Town areas. These exclude the seven mile station which is solely responsible for the Jackson's Airport.

There are two factors proposed in the UDSS for consideration in the provision of fire service facilities and rescue units within the NCD. They are; (a) the maximum population required per fire service facility is 10,000, and (b) the minimum land area required for a fire station can service is 2 hectares.

The provision and distribution of fire stations in the NCD should be based on a graded response time and from a possible fire source to the nearest station, determined by a fire risk. This was discussed in detail in the UDSS.

Under a 5 year Fire Service capital works programme (1995-2000), five additional fire stations have been proposed to cater for and to keep up with the current trend of development within the NCD. The proposed areas are Gerehu (2nd), Bomana/Laloki, Gordons/Saraga, Kilakila/Badili and Tokarara/Hohola; however the population of the NCD has since increased in the last census. Refer to the table below.

Table 7: Locations identified for consideration of fire stations.

Planning Zones	Existing number of fire station	Population (2000 Census)	Land Area (hectares)
Kaevaga Poreporena	-	13,751	648
Kilakila, Koki, Badili	-	34,177	1,182
Napanapa/ Daugo Is	-	911	1,221
Port Moresby, Konedobu	1	13,969	861
Air Port	1	7,731	1360
Boroko	1	30,499	926
University/ Tokarara	-	43,773	1,889
Waigani	1	41,783	1,581
8/9 Mile	-	26,686	4,344
Gerehu/ Waigani Swamp	1	25,382	2,545
Kaevaga Poreporena	-	13,751	648
Kilakila, Koki, Badili	-	34,177	1,182
Napanapa/ Daugo Is	-	911	1,221
Port Moresby, Konedobu	1	13,969	861
Air Port	1	7,731	1360
Boroko	1	30,499	926
University/ Tokarara	-	43,773	1,889
Waigani	1	41,783	1,581
8/9 Mile	-	26,686	4,344
Gerehu/ Waigani Swamp	1	25,382	2,545

One of the major factors affecting the provision of fire services is the lack of adequate water supply, especially in areas of hill top development where the water pressure is low. The settlements are also a problem area for the fire services to serve as they are often difficult to access and lack reticulated water supply from which fire-fighting water could be drawn. Compounding this situation is the continuous harassment of fire service personnel when they attend to fire calls and lack of communication links to call in fires or other such emergencies.

Key Issue 22:

- 22(a) When formulating land use proposals one needs to take into consideration the provision of adequate water supply to the sites and the desired response time from the site to the nearest fire station. The provision and siting of fire stations within the NCD should be based on a graded response time, determined by a fire risk category system taken from the UDSS (1996):
- Class A fire risk – heavily congested built-up areas – 5 minutes
 - Class B fire risk – low density residential suburbs – 5 to 8 minutes
 - Class C fire risk – low density low lying residential areas – 8 to 10 minutes

RECREATIONAL FACILITIES AND AMENITIES

The increasing population, a generally rising standard of living and a desire for a balanced life style in the NCD have made recreation an increasingly important facet of life. The provision of recreation facilities will have to expand to keep up with the demand.

Examples of recreational facilities and amenities include major sports centres, sports fields, swimming pools, general open space play areas and parks.

These facilities and open spaces are currently under threat from development pressures, in particular places like, Paga Hill, Unagi Park and Pidik Park.

Key Issue 23:

- 23(a) It is important that the development plan provides an adequate recreation and open space network which is not only accessible to all but also contains a sufficient variety of landscapes and facilities to satisfy all groups and their interests. All existing recreational areas and open spaces should also be retained in public ownership.

Notes

1 Oram. N, D, Colonial Town to Melanesian City, Australian National University Press (Canberra), 1976

2 Wilbur Smith Associates, et al. Urban Development and Services Study for the National Capital District – Community & Services-Final Report – Vol 2.6 , Author (Port Moresby), p352

3 National Capital District Commission, Settlement Strategy 2006-2010 – Draft Report, November 2005

4 A "cop shop" is a police post located at main commercial centers and manned by ancillary police personnel

8.0 ECONOMY AND EMPLOYMENT

FORMAL ECONOMY

Within the NCD there is an array of economic activities, both formal and informal. Table 8 shows examples of formal sector activities.

Table 8: Formal sector economic activities

SECTOR	ECONOMIC ACTIVITIES
Primary	Agriculture, forestry, fishing, mining and quarrying
Secondary	Manufacturing, industrial and construction
Tertiary	Utilities, wholesale, retail, transport, commerce, community and social services

[Source: UDSS, 1996]

Primary sector activities are usually confined to rural areas; in the NCD they generally occur in the outer city areas. However, the sector does provide employment opportunities for the NCD resident population as well as contributing to economic growth.

The main industrial areas which accommodate the secondary sector activities are located at the Badili, Gerehu, Gordons Industrial area, Idubada, Konedobu, Napanapa, Six Mile and Town. Current industrial activities and non-conforming uses on industrial land are contributing to rapid build up of these areas.

The tertiary sector dominates the NCD. This reflects the primarily administrative and commercial role of the NCD as the seat of the government and the main point of importation of manufactured goods¹. The main centres accommodating these activities are Boroko, Gordons, Town and Town.

The tertiary sector accounts for 72.7% of the total workforce whilst the secondary and primary sectors employ 25.7% and 1.6 % respectively.

The tourism industry is an underdeveloped sector in the NCD and in the country as a whole. There are several reasons for this, not least of which are, competition from other countries in the region, expensive air fares and accommodation, and law and order problems. This is one of the sectors, however, considered to have growth potential.

The development of the Poreporena Highway and the recent upgrading of the arterial road network have helped to alleviate congestion problems throughout the city. As the built-up area expands outwards there will be need for an outer ring road to accommodate additional traffic generated.

UNEMPLOYMENT

Considerable efforts were made by the Strategic Planning Team to obtain accurate information on unemployment in the NCD. The figures provided, however, were contradictory and inconclusive.

Anecdotal evidence points to high levels of unemployment in the NCD, especially in the young working age groups.

INFORMAL ECONOMY

The informal sector comprises those people who are unemployed or self-employed and might receive cash for a job, but not declare it to the state, or do jobs for neighbours or relatives which are repaid in kind². In the NCD, as much as 80 to 90% of the population is involved in the informal sector business. A large number of people make their living dealing in and selling garden produce.

In 2004 the National Government introduced the Informal Sector Development and Control Act 2004. This act aims to

- a) provide the facilities and encourage the development of informal businesses in urban and rural areas; and
- b) regulate and control the development of informal businesses for the protection of public health and safety.

A variety of factors influence the development of the informal sector. They include:

- Rural-urban migration
- Under-paid employment
- Increasing numbers of school leavers (only approximately 15% are absorbed into the formal sector)
- Urban population growth
- Insufficient jobs in the formal sector and
- Increasing unemployment
- Increasing living cost

Currently studies of the informal sector have shown that innovative entrepreneurs engage in the informal sector as a means of employment, in the streets and markets, at bus stops, and alongside houses and villages.

Key Issue 24:

24(a) Current activities conducted under the banner “informal sector” are difficult to control and are giving rise to various road safety, environmental and health concerns.

Notes

1 Wilbur Smith Associates, et al Urban Development and Services Study for the National Capital District – Population, Economy & Land use- Final Report – Vol 1.2, Author (Port Moresby), p12

2 Ayius, A, 'Informal Sector's significance' The Post Courier, March 2 , 2005, p112

9.0 PLAN FRAMEWORK AND DESIRED OUTCOMES

VISION

The NCD Urban Development Plan embraces the following vision;

"TO MAKE THE NATIONAL CAPITAL DISTRICT A VIBRANT, ATTRACTIVE, SUSTAINABLE AND LIVABLE CITY FOR ALL."

- **Vibrant means to thrive, through commerce, education and exchange of information necessary for integral development.**
- **Attractive means to be appreciated both through its visual appearance and its setting.**
- **Sustainable means to support human existence with an acceptable quality of life both for the present and future generations.**
- **Liveable means to live in a safe, healthy and secure environment.**

The development plan was formulated from three options. It is actually an amalgamation of features from these options. It reflects the desired outcomes which are based on consultations with the stakeholders in the NCD and reflects the principles of the Physical Planning Act.

It is based on the following assumptions:

- a) The high growth population scenario in the UDSS of 675, 000 persons by the year 2015 is unsustainable and a National Urbanisation Strategy will be adopted to facilitate more equal growth of urban areas in the country. The Plan has been based, therefore, on the Low Growth Scenario of the UDSS, which is 531, 000 by the year 2015.
- b) The rate of inward migration to the NCD will remain at current levels.
- c) It is expected that following the establishment of the Napanapa oil refinery there will be an increase in economic activities along Boe Vagi road and towards the Napanapa area.
- d) A settlements strategy will be developed to manage settlements growth and self-help housing in the NCD.
- e) The Gordons and Six Mile industrial areas will continue to attract major industrial and commercial activities.
- f) Partnerships will be formed between traditional landowners, the national government, the NCDC and prospective developers to facilitate the registration and release of customary land for development.

STRUCTURAL ELEMENTS OF THE PLAN

Local Planning Areas

For the purpose of effective planning the UDSS proposed the following 14 planning areas based on their geographic locations and respective projected rate of urban expansion. (**See Map 10**). This Development Plan adopts these local planning areas.

1. Port Moresby/Konedobu
2. Kilakila/Koki/Badili
3. Boroko
4. Waigani
5. University/Tokarara
6. Gerehu/Wagani Swamp
7. 8 Mile/9 Mile
8. Airport
9. Kaevaga/Poreporena
10. Huhunama/Tovabada
11. Napa Napa/Daugo Island
12. Taurama South
13. Taurama/ Dogura South
14. Dogura North

Centres Hierarchy

The plan recognizes and recommends strengthening of the following tiers of service and commercial centres. Centres are intended to act as focal points for:

- Service delivery and employment opportunities
- Safe, convenient and accessible future and existing public transport interchanges
- Meeting places for social and community interaction, and
- High density residential locations

City Centre - Waigani City Centre

PRIMARY USES include art/craft centres, banks, child care centres, commercial offices, entertainment centres, government offices, hotels/motels, library, museum, National and Supreme Courts, Parliament House, places of worship, recreational areas, restaurants, retail shops, and theme parks.

Special Centre - Port Moresby Town

PRIMARY USES include port-related activities, offices, limited retail shops, historic (colonial) buildings, banks, post office, hotels/motels, restaurants, art/craft centres and entertainment/leisure centres.

Major Centres

- Boroko (existing)
- Gerehu (proposed)
- Nine-Mile (proposed)

PRIMARY USES include district courts, district fire and emergency station, district police stations, entertainment/leisure centres, health centres, markets, post office, restaurants, retail shops including department stores and wholesale business.

Local Centres

- Hohola (existing)
- Gordons (existing)
- Boroko East (existing)
- Badili (existing)
- Waigani North (existing)
- Tokarara (existing)
- Six-Mile (existing)
- Eight-Mile (proposed)
- Taurama (proposed)
- East of Airport (proposed)
- Baruni (proposed)

PRIMARY USES include community centre, market, police station, retail shops and urban clinic.

ARTERIAL ROADS

The existing and future arterial roads are shown in **Map 9**.

PROMOTION AREAS

There are five promotion areas in the plan.

Economic Development Corridor

That part of the NCD adjoining Fairfax Harbour has experienced significant development recently and it is envisaged that this growth will continue. This area therefore has been identified as an *Economic Development Corridor*. Whilst it is intended primarily for industrial and commercial development other supporting uses will be allowed, e.g. residential development, open space, public utilities. This area is predominantly under customary land ownership and, therefore, this provides opportunities for customary landowners to participate in, and benefit from, the development of their land.

Employment Area

The Gordons Industrial Area and part of the Six Mile Industrial Area have been identified as an *Employment Area*. This is due to the increasing demand for mixed uses which has revealed the need for a special development control policy to manage the physical development whilst encouraging employment opportunities.

High Density [Self-Help] Residential Area

In light of the current establishment of low-cost self-help housing development in the Eight Mile and Nine Mile areas, most of which is unplanned and illegal, it is intended that these should be improved and drawn into the formal urban fabric. This area has been committed as a *High Density [Self-Help] Residential Area* to promote the upgrading of this housing area.

Environment Preservation Promotional Area

An area in the south eastern part of NCD has been identified as an *Environmental Preservation Area* in order to constrain development there. Any urban type development should be resisted. Traditional methods of gardening for subsistence, rather than for large agricultural purposes, may be allowed.

Port Moresby Town Local Development Plan Area

The area covered under the Port Moresby Town Local Planning Area has an existing development plan which has made recommendations on a wide range of development issues and which details zoning and road network proposals. The Local Development Plan will guide all future development in that area.

LAND USE CATEGORIES

Table 9 elaborates on the broad proposed land use categories used in **Map 9 - “Future Land Use & Road Development”**. It should be emphasised that this is a broad strategic plan to be used as a framework for more detailed planning. It is NOT a detailed Zoning Map.

Table 9: Land Use Categories

Land Use	Categories
Open Space	<p>Consistent Land Use or Development:</p> <ul style="list-style-type: none">❖ Active recreational areas, e.g. sports playing fields❖ Green spaces serving as protective “buffers” for environmentally sensitive sites❖ Open spaces for public or restricted use❖ Parklands and passive recreational areas

	<ul style="list-style-type: none"> ❖ Ridge tops and areas above 90-metre contour maintained for environmental and aesthetic purposes
Residential and Ancillary Uses	<p>Consistent Land Use or Development:</p> <ul style="list-style-type: none"> ❖ Appropriate range of local community facilities provided to service the community needs, e.g. schools, clinics, etc. ❖ Local public open spaces and recreational areas ❖ Public utilities, e.g. road, drainage & footpath reserves ❖ Residential subdivisions/areas of a wide variety of housing types ❖ Small scale retail and corner shops
Public Utilities	<p>Consistent Land Use or Development:</p> <ul style="list-style-type: none"> ❖ Major public utilities infrastructure and reserves
Public Institutional	<p>Consistent Land Use or Development:</p> <ul style="list-style-type: none"> ❖ All major civic and public service facilities ❖ Incidental open spaces ❖ Public utilities, e.g. road, drainage & footpath reserves
Commercial	<p>Consistent Land Use or Development:</p> <ul style="list-style-type: none"> ❖ Incidental open spaces ❖ Offices ❖ Public utilities, e.g. road, drainage & footpath reserves retail outlets
Industrial	<p>Consistent Land Use or Development:</p> <ul style="list-style-type: none"> ❖ Garden centres ❖ Industry, processing and manufacturing, except Isolation Industries ❖ Printing establishments ❖ Sawmills and timber yards ❖ Warehousing ❖ Workshops and repair shops
Traditional Villages	<p>Consistent Land Use or Development:</p> <ul style="list-style-type: none"> ❖ Cemeteries ❖ Community centres ❖ Open spaces ❖ Places of worship ❖ Primary or community schools ❖ Self help housing

10.0 DESIRED OUTCOMES

ORDERLY URBAN EXPANSION

A sustainable development plan that uses land efficiently, minimizes transport demands, encourages the cost-effective provision of infrastructure and services, and is consistent with the community's economic, social, cultural and economic values.

Strategies for achieving orderly urban expansion include -

- i. Ensure planning and infrastructure investment decisions are consistent with the NCD Urban Development Plan.**
- ii. Prevent built development above the 90-metre contour line for the purpose of preserving ridge tops for aesthetics and environmental vitality, except where the provisions of a Local Development Plan justify otherwise.**
- iii. Encourage consolidation of existing built-up areas by identifying areas that are suitable for infill or redevelopment.**
- iv. Identify the priorities for Local Development Plans.**
- v. Encourage integrated planning responsive to local environmental conditions and acknowledge the cultural identity and heritage of the area.**
- vi. Identify a clear hierarchy of centres so that facilities, services and employment opportunities are accessible throughout the NCD.**
- vii. Recognise and promote Waigani City Centre as the dominant administrative and commercial, entertainment and recreational centre for the city.**
- viii. Encourage the establishment of commercial activities within the designated centres.**
- ix. Maintain a clear separation of incompatible and conflicting uses, especially residential development in industrial areas.**

INFRASTRUCTURE SERVICES

A city where utility and infrastructure services are accessible by all at an efficient and acceptable standard.

Strategies for achieving the infrastructure and utility services desired outcome include -

- i. Implement development planning for infrastructure needs based on analysis for future development.**

- ii. Confine developments only to areas where infrastructure and utility services exist or can be readily connected.**
- iii. Provide service to areas identified in this development plan.**

THE ENVIRONMENT

A sustainable and healthy natural environment that can be enjoyed by both the present and the future generations.

Strategies for achieving environmental desired outcomes include-

- i. Implement development planning based on environmental impact assessments and recommended mitigatory actions.**
- ii. Ensure development complements the natural features of the NCD, including ensuring that development is subordinate to the ridgelines.**
- iii. Ensure protection and stability of coastlines and natural water ways through application of best practices and management principles.**
- iv. Encourage a development pattern and practices which minimize disturbance that causes soil erosion in the NCD.**
- v. Facilitate developments that implement best practices to improve air and water quality in NCD and discourage those that contribute to their deterioration.**
- vi. Facilitate the integration of land uses and road systems to reduce use of motor vehicles, conserving energy and reducing air pollution.**
- vii. Recognize the disposal pattern of contaminants and minimize their effects.**
- viii. Recognize the impacts of existing sources of noise and air polluting activities and minimize their effects.**
- ix. Ensure view corridors to the ocean and the harbour are maintained.**

RESIDENTIAL DEVELOPMENT

Residential development supports the Urban Development Plan and encourages a sense of community and belonging.

Strategies for achieving the residential development desired outcomes include-

- i. Maintain higher residential densities near concentrations of employment, shopping and recreational opportunities.**
- ii. Implement residential development planning based on a community services concept which incorporates other uses essential for urban living.**
- iii. Define minimum service levels for infrastructure required for new developments.**
- iv. Ensure that the actions recommended under 6 key areas of the NCDC Settlements Strategy 2006 – 2010 are realized.**

TRANSPORT

An efficient transport system successfully integrated with the future land use pattern.

Strategies for achieving the transport desired outcomes include –

- i. Maintain a road hierarchy system that adequately caters for the anticipated traffic types and volumes to facilitate efficient movements, retain residential amenity and minimize through traffic.**
- ii. Implement transport planning that is based on sound financial, environmental and social assessments.**
- iii. In collaboration with the Land Transport Board ensure more effective management and control of the public transport system**
- iv. Implement an integrated and safe system of pedestrian pathways, that could accommodate cycle lanes if the need arises, linking high activity areas.**
- v. Through Local Development Plans, address the problems of inadequate and poor parking facilities**
- vi. Develop and implement a transport corridor planning policy to safeguard the Motukea-Dogura ring road alignment from competing land uses and development.**

SOCIAL SERVICES

A community with a sense of security and having equitable access to community and social services.

Strategies for achieving the social services desired outcomes include –

- i. Ensure that sites are provided at strategic locations within the NCD for the full range of community services.**
- ii. Require buildings, public open spaces and pedestrian ways to implement measures that ensure safety and reduce the risk and fear of crime.**

OPEN SPACES & RECREATION

Adequate provision and distribution of places where the community can access for recreational and leisure use.

Strategies for achieving the open spaces desired outcomes include –

- i. Retain all existing open spaces to meet the recreational needs of the residents and resist all rezoning proposals.**
- ii. Reserve exclusive areas, of an adequate size, in new sub-divisions for recreational purposes.**
- iii. Maintain Ela Beach as the main recreational and leisure area in the NCD.**
- iv. Preserve, where practical, ridge tops, beaches and coastal areas from built development, gardening activities, collecting of stones and cutting of trees.**
- v. Provide ample areas for passive and active open spaces at strategic locations in the NCD.**

ECONOMIC GROWTH

A prosperous and sustainable economy that is diverse and equitable, serving the NCD.

- i. Provide an adequate supply of suitable land and infrastructure services to meet the future needs of business and industry, including the informal sector.**
- ii. Strengthen existing industrial areas by improving infrastructure services, intensifying manufacturing activities and phasing out non-conforming uses.**

iii. Preserve vacant industrial sites for industrial activities and do not approve for non-conforming uses.

iv. Encourage expansion of the tourism industry.

HISTORICAL SITES, RELICS AND LANDMARKS

Historic sites, relics and landmarks are preserved for present and future generations.

These fall into the following categories;

- Archeological sites:
 - ✧ Old Settlement Sites
 - ✧ Old Burial Sites
- Culturally significant sites:
 - ✧ Beaches
 - ✧ Burial Sites
- Historical Buildings, and
- War Monuments.

Strategies for achieving the historic sites, relics and landmarks desired outcome include –

i Recommend that consultations are carried out with the National Site Registry of the Archeological Department of the National Museum on all major development in new areas, to ensure development does not destroy areas of historical significance.

11.0 IMPLEMENTATION

GENERAL GUIDANCE FOR LOCAL PLANNING AREA PRIORITIES

It is anticipated that Local Development Plans (LDPs) for all fourteen Local Planning Areas will be completed by 2012. Their preparation will be undertaken in a phased way based on priorities, as indicated in Table 10.

Table 10: Prioritization schedule for preparation of Local Development Plans

Planning Area	Schedule	Key Factor(s)
Port Moresby/Konedobu	2005	
8 Mile/9 Mile	2006	<ul style="list-style-type: none">▪ Rapid growth of unplanned residential development▪ Need to safeguard and implement first stage of proposed outer ring road▪ Pressing need for control/planned development for this new area
Kaevaga/Poreporena	2007	<ul style="list-style-type: none">▪ Part of the Economic Development Corridor▪ Mitigation of Environmental hazards (rubbish & sewerage disposals, etc) on sea-front villages
Napa Napa/Daugo Island	2007	<ul style="list-style-type: none">▪ Part of the Economic Development Corridor
Huhunuma/Tovabada	2007	<ul style="list-style-type: none">▪ Part of the Economic Development Corridor
Gerehu/Waigani Swamp	2007	<ul style="list-style-type: none">▪ Rapid decline of built form and land use system▪ Growth of unplanned residential development▪ Need to safeguard second stage of outer ring road▪ Need to control development in the vicinity of Waigani Swamp
Waigani	2008	<ul style="list-style-type: none">▪ Promotion of Administrative Centre ("Govt. seat") and commercial centre
Boroko	2008	<ul style="list-style-type: none">▪ Declining commercial centre and proper delineation of other uses▪ Steady decline of built form and land use system
Airport	2008	<ul style="list-style-type: none">▪ Steady decline of built form and land use system
University/Tokarara	2010	<ul style="list-style-type: none">▪ Steady decaying of built form and land use system▪ Review of residential densities
Kila Kila/Koki/Badili	2010	<ul style="list-style-type: none">▪ Old area to be reviewed
Dogura North	2012	
Taurama/Dogura South	2012	
Dogura North	2012	
Taurama South	2012	<ul style="list-style-type: none">▪ Low intensity Development Areas

LAND RELEASE AND DEVELOPMENT CONTROL MECHANISMS

The Terms of Reference for this Development Plan called for the inclusion of a description of Land Release and Development Control Mechanisms. Following in depth research and based on current professional advice, it was decided to include these two sections in the Appendices. They are to be found at Appendices A and B.

12.0 STAKEHOLDERS IN THE DEVELOPMENT PLAN

The purpose of this section of report is to identify the various stakeholders in the Plan and their different and, sometimes competing interests.

For the purposes of the NCDUDP, a “Stakeholder” is a person(s) or an organisation having a direct or indirect interest in the NCDUDP.

Table 11 gives the list of various stakeholders in the Development Plan and their interests.

Table 11: Stakeholders in the Development Plan

SECTOR	STAKEHOLDER	INTERESTS
NCDC	NCDC - Administration	Urban Management, Provision of essential services and Revenue Generation.
COMMUNITY	Residents of NCD	Concerned about quality of life and living standards and the provision of basic services and facilities.
	Motu Koitabu people	Traditional people of NCD.
	Women's Groups	Concerned about quality of life and living standards and the provision of basic services and facilities.
	Youth Groups	Concerned about quality of life and living standards. And the provision of employment opportunities and recreation and leisure facilities.
	Church Organizations	Largely concerned about the spiritual well-being of its members corresponding with quality of life and living standards and the provision of basic services and facilities.
	Sports Groups	Concerned about the provision of sports and recreational facilities in NCD.
INSTITUTIONAL	Department of National Planning & Rural Development	Compliance with National Development Policies and Programs.
	Dept of Transport	Compliance with Transportation Plans, Programs and Issues.
	Department of Works	Compliance with National Road Proposals.
	Dept of Envt & Conservation	Compliance with Environmental Plans, Programs and Issues.
	Department of Lands & Physical Planning	Maintaining Professional Physical Planning Standards, Ensuring the compatibility of Leases with Proposed Land Uses; Phasing of Land Release.
	Dept of Education	Compliance with National Education Plans, Policies and Plans.
	Dept of Mining	Geology of NCD and effects on development.
	Royal PNG Constabulary	Responsible for NCD's law and order and traffic issues.
	Dept of Health	Compliance with National Health Policies and Plans.

SERVICE PROVIDERS	Eda Ranu	Responsible for the provision and management of water supply, sewerage facilities and waste management in the NCD.
	PNG Power	Responsible for the provision and management of electricity supply.
	NCD Fire Service	Responsible for managing and catering to the needs of the public with regards to Fire Services.
	Telikom	Responsible for telephone services and network lines.
	Telecommunication Organizations	Responsible for the provision and management of various telecommunication networks/lines.
PRIVATE SECTORS	Maritime Industry	Concerned about maintaining and promoting shipping interest
	Port Moresby Chamber of Commerce & Industry	Represents the business interests in NCD
LEGISLATIVE & REGULATORY	NCD Physical Planning Board	Responsible for the assessment of land-use proposals, development policies and plans; Development control within NCD; Compliance with Planning Legislations.
	Senior Physical Planner	Principal advisor to the NCDPPB; Responsible for running the support office of the Physical Planning Board; Responsible for the provision of specialist advice on the ordering of development plans.
	Minister for Lands and Physical Planning	Gives consent to order NCDUDP; Can scrutinize NCDUDP and refer it back to NCDUDP.
	NCD Physical Planning Office	Responsible for the provision of professional, technical and administrative support for NCDC organization and NCDPPB.
	Chief Physical Planner	Responsible for the Maintenance of Professional Physical Planning Standards; Advisor to NCDPPB.
	NCD Building Board	Responsible for the assessment of building applications and approvals; Compliance with Building Regulations.
	PNG Land Board	Responsible for the assessment of land applications and compliance.
	Government Departments	Responsible for Administration of relevant Acts.
OTHER STATUTORY BODIES	PNG Harbours Board	Manage and administer the Port facilities.
	National Housing Corporation	Responsible for the provision and maintenance of Housing and Residential needs.
	National Road Safety Council	Responsible for managing and monitoring the roads and traffic needs.
	Tourism Promotion Authority	Responsible for the Implementation of the Government's Tourism Policy and for fostering tourism development in PNG.
PROFESSIONAL BODIES	Institute of Engineers PNG	Providing professional and technical support; Promote professional ethics among affiliated members.
	Association of Surveyors	Providing professional and technical support; Promote professional ethics among affiliated members.
	PNG Institute of Valuers and Land Administrators	Providing professional and technical support; Promote professional ethics among affiliated members.
	PNG Institute of Architects	Providing professional and technical support; Promote professional ethics among affiliated members
NON-GOVERNMENT ORGANISATIONS		Responsible for provision of Profession, Technical and Administrative Support; Advocates social welfare and environmental issues.

13.0 INFRASTRUCTURE EXPANSION

PHYSICAL INFRASTRUCTURE

Map 11 shows the areas to be served by expanded service infrastructure networks to support physical development in NCD. Infrastructure includes roads and surface water drainage, water supply and sewerage services, electricity, and telecommunications. The expansion program is in two (2) phases; the short-term and long-term.

The short term period accommodates for current areas of high demand. These areas include 8/9 Mile area, the area north-eastern part of Fairfax Harbour, Morata, Taurama Road and the area north of Gerehu.

Maintenance and improvement of existing infrastructure systems should be carried out to meet the existing and future demand.

The future phase will include all areas identified in Map 9 for physical development.

Short-term road development program should be as follows:

- a. The definition and protection of the outer ring road easement linking Motukea, Gerehu, 9 Mile and Dogura from both formal and informal development. Actual survey of the easement needs to be carried out and registered.
- b. The section of the ring road from Hubert Murray-Sogeri Road (9mile) junction to Gerehu is a high priority. It is a vital link that will assist cross-town traveling, reduce congestion and open up land within its corridor.
- c. The Extension of Koura Way linking Badihagwa Road is also necessary to reduce through-traffic on Waigani Drive intending to get on to the Poreporena Highway to Port Moresby Town area. It will improve traffic circulation
- d. Formulation of a sustainable maintenance program for all existing roads in the NCD.

The future road development is shown on Map 9 as Proposed Road Network.

SOCIAL INFRASTRUCTURE

In NCD, applying the standard population catchments requirements for social infrastructure such as police stations, post offices, schools and clinics is not feasible given the high densities in most areas. These high densities will mean that the social services will be required in all suburbs although the provisions will depend on the availability of funds.

14.0 REVIEW

LIMITATIONS OF THIS PLAN

At the outset, due to the urgency, it was agreed with the Chief Physical Planner, that this Plan could be prepared to meet only the bare requirements of the Physical Planning Act 1989. The Plan has been prepared within the following limitations:

Lack of recognition of importance of physical planning

The operations of the NCDC need to flow from a common vision for the future growth and development of the NCD and be integrated and co-ordinated to achieve that vision. The importance of the NCD UDP has not been recognised or emphasised by the past management of the NCDC. Engineering projects have been given funding priority over recent years and planning projects have had low priority. In addition, changes to work priorities, stemming from directives from management and the Executive Board, have further slowed progress on the preparation of the Plan.

Limited resources

The scope of the Plan has been limited by:

- The lack of a multi-disciplinary team of planning related specialists;
- Limited funding;
- Limited logistical support; and
- Lack of manpower for field surveys.

Lack of up-to-date comprehensive information

Time and resource limitations for the preparation of the Plan meant that extensive data collection and surveys on various topics were not conducted. Out of necessity, comprehensive though out-dated databases, primarily those in the UDSS, were used to source information for the Plan. Cooperation from government agencies and certain statutory authorities was not as expected and this also prevented the collection of comprehensive up-to-date information.

Limited public feedback

Community responses were minimal even though a comprehensive public consultation process, including road shows, was undertaken. For this reason, there has been little input to the Plan from members of the community.

A MORE THOROUGH URBAN STUDY

Due to the limitations identified earlier there is a need for a more thorough urban study of the NCD. It is recommended that this could be undertaken as a review of this Plan in accordance with Section 66 of the Physical Planning Act 1989.

Objectives

- i) Consider the NCD in a wider context in conjunction with its sub-region.
- ii) Establish an up to date comprehensive database for the NCD and the sub-region;
- iii) Review the NCD Urban Development Plan and lay down a framework for physical development in the NCD and the sub-region for a fifteen year period.

Contents

- ***Broad overview of the sub-region***
 - Definition of boundaries of sub-region to include infrastructure headworks, potential port and airport sites and potential sites for satellite towns;
 - Inter-relationship/linkages between the sub-region and the NCD; and
 - Overview of main characteristics of the area.
- ***Up to date survey collection within the NCD***
 - The size, composition and distribution of the population;
 - The social and economic characteristics;
 - The physical characteristics;
 - The environmental characteristics;
 - Land tenure;
 - Land use and urban form;
 - Housing;
 - Transportation; and
 - Service Infrastructure.
- ***Analysis and plan***
 - Planning constraints and opportunities in sub-region (Broad-brush);
 - Planning constraints and opportunities in the NCD (Detailed);
 - Population trends and projections (NCD);
 - Economic trends and growth potential;
 - Committed development (Outstanding approvals);
 - Social constraints and opportunities;
 - Formulation of land budget;
 - Housing needs;
 - Transportation needs, including public transport, assessment of need for port and airport relocation, a railway system and improved road system;
 - Service infrastructure needs, including potential headworks and waste disposal sites in the sub-region;
 - Review of the NCD Settlements Strategy 2006-2010;

- Preparation and testing of alternative development strategies for the sub-region, including the possibility of satellite town(s) and the NCD;
 - Selection of Preferred Option;
 - Policies; and
 - Phasing of development.
- ***Implementation strategy***
 - Guidelines for implementation;
 - Identification, & definition of roles, of implementation agencies;
 - Partnerships; and
 - Funding Sources.

APPENDICES

APPENDIX A Land Release Process

APPENDIX B Development Control Mechanisms

APPENDIX C Terms of Reference for the NCD Urban Development Plan

APPENDIX A:

LAND RELEASE PROCESSES

APPENDIX B:

DEVELOPMENT CONTROL MECHANISMS

APPENDIX C:

**NCD URBAN DEVELOPMENT
PLAN
TERMS OF REFERENCE**