

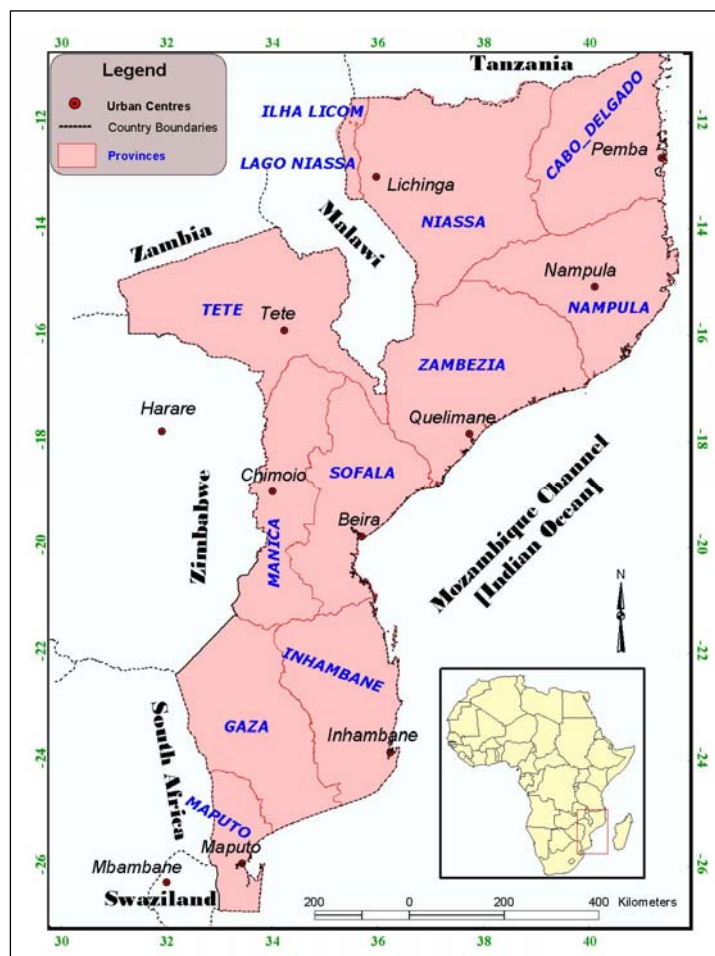
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1. Introduction

Mozambique is a Portuguese-speaking country which lies on the south-east coast of Africa and forms part of the southern African region, sharing borders with Tanzania, Malaŵi, Zambia, Zimbabwe, Swaziland and South Africa (Figure 1). The capital (port) city is Maputo, and other major port towns are Beira and Nampula, Quelimane and Nacala. According to National Statistics Institute estimates (INE 2008), the overall population of Mozambique is approximately 18 million inhabitants, of whom 51.9% are female. Administratively, Mozambique is divided into 10 provinces, the most populated of which are Nampula and Zambézia, with 38.2% of the country's population. Approximately 68.8% of the population live in rural areas, compared to about 30.2% in urban centres (INE 2008).

Figure 1: Location of Mozambique in Africa



Source: Compiled by the author.

1.1 The economy of Mozambique

Mozambique has an agriculturally-based economy, and industrial development has been slow as a result of the civil war (1975–1992) that destroyed most of the country's infrastructure. The country has considerable mineral resources, though exploitation is limited. Its economy grew at a pace of 7.3% in the first half of 2005 and over the past few years Mozambican exports have grown at an average rate of 10% per year (Mbendi 2008). However, despite the economic growth rate, 50% of the Mozambican population still lives in absolute poverty (Pitcher 2002; UNHDR 2006). According to the 2005 UNHDR report Mozambique was ranked 168th out of the 177 countries covered (UNHDR 2005). The low rating was attributed to the impact of HIV/AIDS, frequent droughts and crop failure. Despite the legacy of colonisation and civil war that has left Mozambique one of the poorest countries in the world, the country has experienced unprecedented economic growth in recent years (Bolnick 2004; Economic Commission for Africa 2003; Pitcher 2002). However, urban growth in Mozambique is similar to that in many countries in southern Africa, where rural-urban migration has been fuelled by a combination of poverty, drought and conflict. Civil war conflict played a significant role in the rapid increase of the urban population in Mozambique between 1984 and 1992.

1.2 The city in Mozambique and associated challenges

The Mozambique Land Regulation of 26 December 2006, Chapter 1, Article 1 gives the following definitions for urban and urban related land and land uses:

1. Urban soil – every area comprehended within the perimeter of the legally established municipalities, villages and settlements.
2. Urbanised area – consolidated occupancy area whereby the urban buildings occupy exclusively their respective parcels or fields without competition with other buildings owned by third parties and that are integrated into a land use plan.
3. Urbanisable area – an area where one or more urban or rustic buildings can be totally or partially built.
4. Rustic building – a delimited parcel of land and the constructions contained therein that have no economic autonomy, and whose income depends mainly on the land itself, whereas the constructions have an activity as a function in support to land exploitation.
5. Urban building – a building incorporated into the land, with the parcels that operate as public spaces, as well as a parcel or plot delimited and integrated into an urbanised area.
6. Plot – a last indivisible portion of land, defined in the detailed plan.
7. Urbanisation – transformation of the soil by providing it with infrastructures, equipment and constructions that ensure the physical settlement of populations in conditions to benefit from increasing level and quality services in the spheres of health, education, road traffic, sewage systems, commerce, and leisure, among others.

According to the same article, urbanisation can be categorised in three phases, namely: (a) basic urbanisation, (b) intermediate urbanisation and (c) complete urbanisation. The urbanisation process in Mozambique, as defined by the 2006 Mozambique Land Regulation, can be summarised as follows:

- **Basic urbanisation** is established when the following conditions are conjugated in the area on a

cumulative basis: (1) the parcels or fields aimed at different uses are physically delimited; (2) the map of the equipment is part of a network of accesses that integrate the traffic of automobiles with access for pedestrians; (3) water is supplied [in] great amounts and [at] several springs, with quality compatible with their uses, and they are called public fountains, wells or springs; and (4) the streets are sided by trees.

- **Intermediate urbanisation** is established when at least the following conditions are conjugated in the area on a cumulative basis: (1) the parcels or fields aimed at the many uses are physically delimited; (2) the streets are finished with good-quality soil, mechanically levelled; (3) there is an open system for rainwater drainage; (4) the water supply is ensured through a home-delivery distribution system; (5) the electric power supply is ensured through a home-delivery distribution system; (6) the streets and green areas are totally planted with trees.
- **Complete urbanisation** is achieved when at least the following conditions can be found altogether in the area: (1) parcels or fields aimed at the many uses are physically demarcated; (2) the streets are finished with asphalt or bitumen and bordered by curbing; (3) the drainage of rainwater is duly made by an appropriate network system; (4) the water supply is ensured by a home-delivery distribution network; (5) the electric power supply is ensured through a home-delivery distribution network; (6) the streets and green areas are completely planted with trees; (7) the sidewalks are covered; and (8) the telecommunication system is ensured through appropriate networks.

In Mozambique most urban settlements developed along coastal regions. A city or town in Mozambique can basically be defined in terms of the population size, with any settlement having a population size of 10 000 or more people being recognised as a city or town. However, all the urban 'settlements' lack basic facilities and services such as running water, electricity and a proper road network. Table 1 shows some of the urban areas in Mozambique fitting the definitions above.

As can be seen in Table 1 there has been a rapid increase in urban population in the past decade. This in turn has precipitated several challenges, chief of which has been informal settlements. However, since all land in Mozambique is state property, there is no legal definition of informal settlement. As such the absence of 'proper' planning is indicative of the problem of 'squatter settlements' where people occupy land in a *haphazard* manner. This is mainly attributed to the land (and property) ownership regime in the country, which is largely derived from its colonial history, particularly the way in which the 'settler' population left, i.e. this population departed en masse in 1975 at independence. Most Mozambique people then moved in to occupy areas (residential or otherwise) left behind by the 'settlers' in a largely 'uncontrolled' manner resulting in the disappearance of any zoning patterns in the 'urban areas'. Furthermore, all land in Mozambique was nationalised at independence, and laws governing land rights recognise rights acquired through inheritance or occupation such that any person who can 'prove' that they have occupied a piece of land in good faith for more than 5–10 years can be duly declared the rightful occupier of the land (PARPA II 2001).

In addition, many families started to live in the peripheral neighbourhoods (the urban fringe) of urban areas, having arrived from rural areas attracted by the possibility of getting jobs and improving their lives, health and cultural conditions. It was only during the late 1990s that town councils were established in most cities and started to establish services and social amenities. The councils, however, have relied heavily on a guided participatory system for the installation of commercial and artisan activities in peripheral urban areas. The town councils, the effective instruments for urban management, were transformed into Executive Councils with their respective City Assemblies in early 2000, in order to fulfil their new role based on community management. At the community level the management of urban life was handed over to 'Grupos Dinamizadores', now called 'Secretario de Barrio'. However, this arrangement has not been very effective in combating the rural-urban influx

and the associated challenges of providing services and facilities.

Table 1: Cities' and towns' population dynamics in Mozambique, 1997–2007

	Name	Status	1997	2007	Population change	% growth
1	Maputo	CProv	989 386	1 099 102	109 716	11.1
2	Matola	CDist	440 927	675 422	234 495	53.2
3	Nampula	CDist	314 965	477 900	162 935	51.7
4	Beira	CDist	412 588	436 240	23 652	5.7
5	Angoche	City	88 985	277 412	188 427	211.8
6	Chimoio	CDist	177 608	238 976	61 368	34.6
7	Manica	City	29 662	213 206	183 544	618.8
8	Nacala	CDist	164 309	207 894	43 585	26.5
9	Chibuto	City	53 425	197 214	143 789	269.1
10	Quelimane	CDist	153 187	192 876	39 689	25.9
11	Cuamba	City	59 396	187 458	128 062	215.6
12	Chokwé	CDist	51 635	187 422	135 787	263.0
13	Montepuez	City	58 594	185 635	127 041	216.8
14	Mocuba	City	127 200	170 000	42 800	33.6
15	Tete	CDist	104 832	152 909	48 077	45.9
16	Gurué	City	101 367	145 000	43 633	43.0
17	Dondo	City	74 388	142 387	67 999	91.4
18	Lichinga	CDist	89 043	142 253	53 210	59.8
19	Pemba	CDist	88 149	141 316	53 167	60.3
20	Xai-Xai	CDist	103 251	116 249	12 998	12.6
21	Maxixe	CDist	97 173	105 895	8 722	9.0
22	Inhambane	CDist	54 147	63 740	9 593	17.7

Source: INE 2008

Note: Cdist = City & District centre; CProv = City & Province centre

1.3 Land tenure and the city in Mozambique

As regards the land tenure system in Mozambique, this is also largely a result of the colonial legacy in one way or the other. Recently though, as pointed out by Norfolk and Liversage (2002), the regime of rights to land in Mozambique has undergone a radical change. A new Land Policy was adopted in 1995; a new Land Law was passed in 1997; regulations for dealing with rural land parcels were promulgated in 1998, and a Technical Annex to these regulations (detailing the method by which registration of community rights should take place) was passed at the end of 1999. All these developments are aimed at controlling land ownership and use rights within the rural and urban areas alike. However, central to all the amendments is state ownership of land and very limited private land ownership. What has changed ('improved') are access rights to land whereby private players can now easily access land for development purposes.

Compounding the problems in the urban areas of Mozambique is the absence or very weak nature of a framework to design, implement and enforce building standards. This also is primarily a result of the colonial legacy. At independence the authorities were unable or unwilling to apply building standards to the more marginal urban areas. Consequently, the rural-urban influx resulted in more

people being accommodated in areas with very poor to non-existent facilities and services. This has led to all sorts of challenges, from services provision (roads, power) to health problems like diseases (especially waterborne diseases like cholera, diarrhoea, malaria etc.), to environmental problems due to the encroaching urban areas. The vast majority (>70%) of urban residents still rely on pit latrines or have no sanitation facilities. Haphazard dumping and low (20–30%) collection levels of solid waste compound these problems. The general characteristics of the peri-urban settlements are best summarised by a UN Habitat report as follows:

The peri-urban areas are characterised by unplanned growth of the precarious and peri-urban areas, aggravated by the absence of land use planning instruments and their execution and control. As a result, most of the urban population was living in areas without adequate access to basic infrastructure and social amenities and was living in sub-standard housing, without secure land tenure rights. These areas represented 50% of the total urban area in 1980, and the population living there comprised 50% of the total urban population. According to the 1980 census data, 24.4% of the urban population had [a] piped water system within the house, 44.2% [had a] piped water system outside the house (in the back yard), and 25.7% were supplied [by] water from the wells. Those remaining used water from small lakes or rivers. The urban population that had access to electricity was 23.2%. In 1980, about 37.8% of the urban population lived in permanent houses and 62.2% lived in non-permanent houses. However, when compared to data from the 1970 census the number of permanent houses had increased by 100%. Building materials used in urban housing were as follows: 37.2% of the houses were built of cement or brick, 8% of wood and corrugated iron, 7.8% of the houses were constructed of mud bricks, 18.4% of woven cane structures (hurdles) and 25.42% of woven sticks with mud plaster (wattle and daub). (CEHD 2006)

1.4 The legislative framework governing land use in Mozambique

With regard to the process of spatial and physical planning in Mozambique, the National Institute for Physical Planning (INPF) has, since 1985, prepared physical plans or supported the City Executive Councils (CECs) in their preparation, spelling out planning norms and principles, as well as monitoring and controlling implementation. According to the Land Law, the CECs were supposed to submit structure plans for approval by the City Assemblies. The INPF, together with its provincial organs, prepared structure plans and/or priority action plans for most of the main cities.

Previously, the INPF was responsible for urban and rural planning, though with emphasis on the urban areas. In this role the INPF coordinated the formulation of physical plans for all provincial capitals. By 2000, the INPF had been integrated into the Ministry for the Coordination of Environmental Action (MICOA) as the National Directorate for Territorial Planning (DNOT). Municipalities therefore have to work more closely with MICOA regarding urban planning.

Several pieces of legislation were put in place in line with both decentralisation and urban planning in Mozambique. The following legislation primarily governs planning in urban areas. Law No. 2/97 of 18 February 1997, known as the Municipalities Law (Lei das Autarquias), makes provision for the establishment of the general legal framework governing municipalities, their competencies, functions and all aspects of their structural organisation. Through this law, municipalities in Maputo Province (the location of the capital city) and the ten provincial capital cities were established. These municipalities are given substantial powers over local services and economic development. Law No. 10/97 of 31 May 1997 makes provision for the establishment of municipalities in the remaining 22 cities and 10 towns (one for each of the 10 provinces). Furthermore, Law No. 11/97 of 31 May 1997

defines the financial framework for the municipalities. This law gives powers to municipalities to raise their own revenues and to conduct their finances in an accountable and transparent manner. There are two types of decentralised local authorities: (a) municipalities in the cities and the towns, and (b) villages (povoações) in the areas covering the headquarters of district administrations.

In Mozambique, the structure plan is the most general physical plan for an urban area, and covers the whole area of a city's physical development for a period of 10 years. Based on an analysis of the city's problems and its expected socio-economic evolution, the structure plan is intended to direct the city's future development through the definition of broad land-use zoning, location of infrastructure and social facilities, urban development standards and ecological zoning. According to the INPF, in principle the structure plan is subject to revision every five years, although at present local government suffers from a shortage of technical capacity to carry out such revisions, as well as the absence of guidelines to revise the plans.

1.5 The legislation and planning system governing urban land use

In Mozambique land is the property of the government and it cannot be sold or in any other way acquired by the user, mortgaged or used as lien (Art: 3). The use of land at national level in regard to housing policy, human settlements, planning, training, and institution-building is the responsibility of the Minister for Public Works and Housing, then of the National Director of Housing, responsible for regional and urban planning, housing, and social equipment, as well as training programmes for basic and mid-level rural and urban planning technicians. However, by law, use of land as governed by the Constitution states that:

- (a) The Right of Land Use and Exploitation, (Direito de Uso e Aproveitamento) (DUAT), can be transmitted by inheritance, with no gender distinction (No. 1, Art: 16);
- (b) The titular [holder] of DUAT can transmit the infrastructures, constructions and benefits, through public deed preceded by a Governmental Authorisation. (No. 2, Art: 16);
- (c) In the case of urban buildings, with the transmission of the building, the DUAT is also transmitted (No. 4, Art: 16); 4.1.2

Regarding the registration and title of land use and exploitation, according to No. 1 of Article 14 of the same law, the Constitution, modification, transmission and extinction of the Right of Land Use and Exploitation are liable to registration. However, No. 2 of the same article determines that the absence of registration does not affect the right of land use and exploitation acquired by occupation.

The fact that inhabitants who reside in the informal settlements of the Beira Municipality are subject to the conditions predisposed in the previous numbers of the articles of the Constitution (customary practices, occupation by good faith for at least 10 years, provisory authorisation with no immediate necessity of demarcation), indicates that there are minimum conditions for the attribution of DUAT, and that in reality it would be a form of confirmation (comprovação) of the land use and exploitation as it is established in Article 15. As regards security of tenure, the Municipal Council, when expropriating land for example to establish public infrastructure, is supposed to give advance warning of the eviction, and alternative land is provided. Furthermore, the municipal authorities guarantee protection for residents in cases of land conflicts or expropriation by private entities etc. Land and legislation governing land use for Mozambique can be summarised as follows:

Overview of Mozambican Land Policy and Implementation Challenges

National land policy in Mozambique is in theory oriented and guided by the 1995 National Land Policy and the 1997 Land Law and by the set of regulations which

accompany this legislation and determine the forms of its implementation. However, there are growing concerns about the government's capacity and determination to actually implement some parts of the 1997 legislation and also about its effectiveness in guiding land administration and land use decisions at the local level.

Basic principles of 1995 National Land Policy

- ♦ State ownership of land, as laid down in the constitution
- ♦ Guaranteed access to land for the population as well as for investors, while promoting social and economic justice in the countryside by recognising the customary rights of access and management of rural people over their land
- ♦ Guaranteed rights of access to and use of land by women
- ♦ Promotion of private investment – national and foreign – without prejudicing the resident population and ensuring that both they and the public treasury benefit
- ♦ The active participation of nationals as partners in private enterprises
- ♦ The definition and regulation of basic guidelines for the transfer of use rights over land, between citizens or national enterprises, as long as investments have been carried out on the land in question
- ♦ The sustainable use of natural resources in a way that guarantees the quality of life for present and future generations

Regulating urban land use

While much of the discussion around the new land law concerned the situation in rural areas, there are a number of issues which are particularly relevant to the current discussion of urban land:

- ♦ Many land conflicts and related problems are due to the ineffective implementation of the existing laws, and the very weak capacity of the Cadastral services.
- ♦ Land conflicts are also being caused by the overlapping of responsibilities and actions between a range of public entities, including the cadastral services (DINAGECA), municipal directorates of urbanisation and construction, line ministries – who are all seeking to retain their rights to allocate land rights and concessions.
- ♦ Traditional or customary land management systems are still functional and in fact are responsible for the vast majority of land access and use issues, including the resolution of conflicts at local level.
- ♦ The regulations over urban land use, known as the 'Regulamentos do Uso do Solo Urbano' have still not been formally approved. An initial version submitted to the Council of Ministers in 2002 was rejected.
- ♦ The main central government agencies with interests in this process are the Ministry of Public Works and Habitation (MOPH), the Ministry of Agriculture and Rural Development (MADER), to which DINAGECA is a subordinate directorate, the Ministry of Justice, which controls the Registo Predial, the Ministry of Planning and Finance and the Ministry of State Administration. (Tanner 2002: 31)

As in some African countries, Mozambique has a multi-tier system of local government: province, district, administrative post, and locality, but the autonomy of such sub-national structures was constrained by excessive centralisation of decision-making until the amendment of the 1990

Constitution (by Law No. 9/96) which established Local Power (o poder local), under the principle of implementing decentralisation. The principle of Local Power and the commitment to decentralisation are highlighted in the new 2005 Constitution.

The legislation relating to local government in Mozambique includes:

- The Constitution of the Republic of Mozambique.
- Law No. 2/97 of 18 February 1997 – known as the Municipalities Law (Lei das Autarquias), which establishes the general legal framework governing municipalities, their competences, functions and all aspects of structural organisation and functioning. According to this law municipalities are given substantial powers over local services and economic development.
- Law No. 10/97 of 31 May 1997 which establishes as municipalities the remaining 22 cities and 10 towns (one for each of the ten provinces).
- Law No. 11/97 of 31 May 1997 which defines the financial framework for the municipalities. This law gives powers to municipalities to raise their own revenues and to conduct their finances in an accountable and transparent manner.
- Law No. 9/97 of 31 May 1997 which establishes the roles and responsibilities of office holders and members of the municipalities.
- Law No. 7/97 of 31 May 1997 which covers the state administrative tutelage over municipalities.
- Law No. 6/97 of 31 May 1997 which defines all electoral matters for the municipalities.

According to a World Bank Report (2001), among the main components of the legislation were constitutional amendments to permit the creation of local governments (Law No. 9/96 of 22 November 1996); the Law of Municipalities (Law No. 2/97 of 18 February 1997); and the Law of Municipal Finances (Law 11/97 of 31 May 1997). These constituted a comprehensive national legal framework giving municipalities extensive administrative and financial autonomy. Municipal elections were held on 30 June 1998 in 33 urban centres: 10 regional capitals (Cidades Capitais), 13 cities (Cidades), and 10 towns (Vilas).

Administrative organisation in Mozambique is divided into decentralised administrative units and local governments. The former are the provincial governments (10), the district administrations (128), the administrative posts (394), and the localities (1 042). The local government structures consist of a single tier of 33 urban municipalities, in the cities (23) and certain towns (10). Decentralised local authorities are the local state bodies whose function is to represent the central government at local level for purposes of administration and development of the respective territory (province, district, administrative post, and locality) and contribute to integration and national unity. Decentralised local authorities in Mozambique are the municipalities created in terms of Law No. 2/97. There are two types of decentralised local authority: municipalities in the cities and the towns, and villages (povoações) in the areas covering the headquarters of district administrations, requiring assemblies (local parliaments).

With regard to the process of spatial planning in Mozambique, the INPF has, since 1985, prepared physical plans or supported the CECs in their preparation of plans, spelling out planning norms and principles, as well as monitoring and controlling implementation. According to the Land Law, the CECs were supposed to submit structure plans for approval by the City Assemblies. The INPF, together with its provincial organs, has prepared structure plans and/or priority action plans for most of the main cities. As stated above, in Mozambique the structure plan is the most general physical plan for an urban area, and covers the whole area of a city's physical development for a period of 10 years. Based on an analysis of the city's problems and its expected socio-economic evolution, the

structure plan is intended to direct the city's future development through the definition of broad land use zoning, location of infrastructure and social facilities, urban development standards and ecological zoning. According to the INPF, in principle the structure plan is subject to revision every five years, although at present local government suffers from a shortage of technical capacity to carry out such revisions, not to mention the absence of guidelines to revise the plans.

In cases where the municipalities are not effective, alternative urban land allocation procedures, mostly based upon practices and policies which were put in place either during the colonial period or in the immediate post-independence period, have emerged. Importantly, the role of traditional authorities in determining land use and settling land disputes seems to have been increasing in many peri-urban areas of major towns and cities in Mozambique (Jenkins 2001; Swede Survey 1999). This directly reflects the inability of state agencies and officials to effectively fulfil their legal responsibilities in the areas of land demarcation, titling and administration. By and large, municipalities experience difficulties in paying wages and providing services and are forced to operate in response to the most urgent demands or the strongest political pressure. The municipal staff usually lack motivation because of the poor salaries they receive. Furthermore, poor spatial planning performance and uncontrolled urban population growth have generated conflicts over the occupation of urban land, made more acute by the absence of an efficient land registration system. Indeed, outside Maputo, only Beira, Nampula, Quelimane, Matola and Nacala municipalities have developed some planning and regulatory interventions. Overall, the shortage of skilled personnel to manage problems in the cities has been a contributing factor to the establishment of planning-related training at the Universidade Católica de Moçambique (UCM), so as to try and foster sustainable development within the cities and surrounding areas.

2. Beira City in Mozambique

Beira is the second-largest city in Mozambique. It lies in the central region of the country in Sofala Province, located at the mouths of the Púngwè and Búzi Rivers. It was founded in 1891 as the headquarters of the Companhia de Moçambique (Mozambique Company) on the site of an old Muslim settlement (Kyle 1999; Silva 2003). The city's administration passed from the trading company to the Portuguese government in 1942 and then to independent Mozambique in 1975 (Kyle 1999). The port developed as a trade and transportation outlet for the products of Central Africa and as a transshipment point for coastal cargo. The city serves as an ocean terminus for railways from South Africa, Zimbabwe, Zambia, Congo, and Malaŵi, and is the main port for Zimbabwe and Malaŵi (Mbendi 2008).

Principal exports passing through Beira are metal ores, tobacco, food products, cotton, and hides and skins and the main imports are liquid fuels, fertilisers, wheat, heavy equipment, textiles and beverages (Mbendi 2008). A fishing harbour, which includes canneries, processing plants and refrigerated stores, was constructed at Beira in the early 1980s (Kyle 1999). These economic activities together provided most (>80%) of the employment in Beira City. However, repeated bombings of the Mutare–Beira railway line, first by Zimbabwean liberation fighters prior to Zimbabwe's independence in 1980 and then later in the early 1980s by the Mozambique National Resistance Movement, resulted in frequent interruptions of rail service and subsequently in a decline in business in Beira City.

2.1 Population dynamics for the City of Beira

Beira city had a population of 412 588 people in 1997 and an estimated 439 264 in 2008 (INE 2008). During the 1980s much of the population increase was attributed to people moving away from

‘unsafe’ war-ravaged rural areas to ‘safe’ cities. This also resulted in many unplanned settlements which are still visible within the city today (see Figure 2). Table 2 summarises the population dynamics for Beira City over the years.

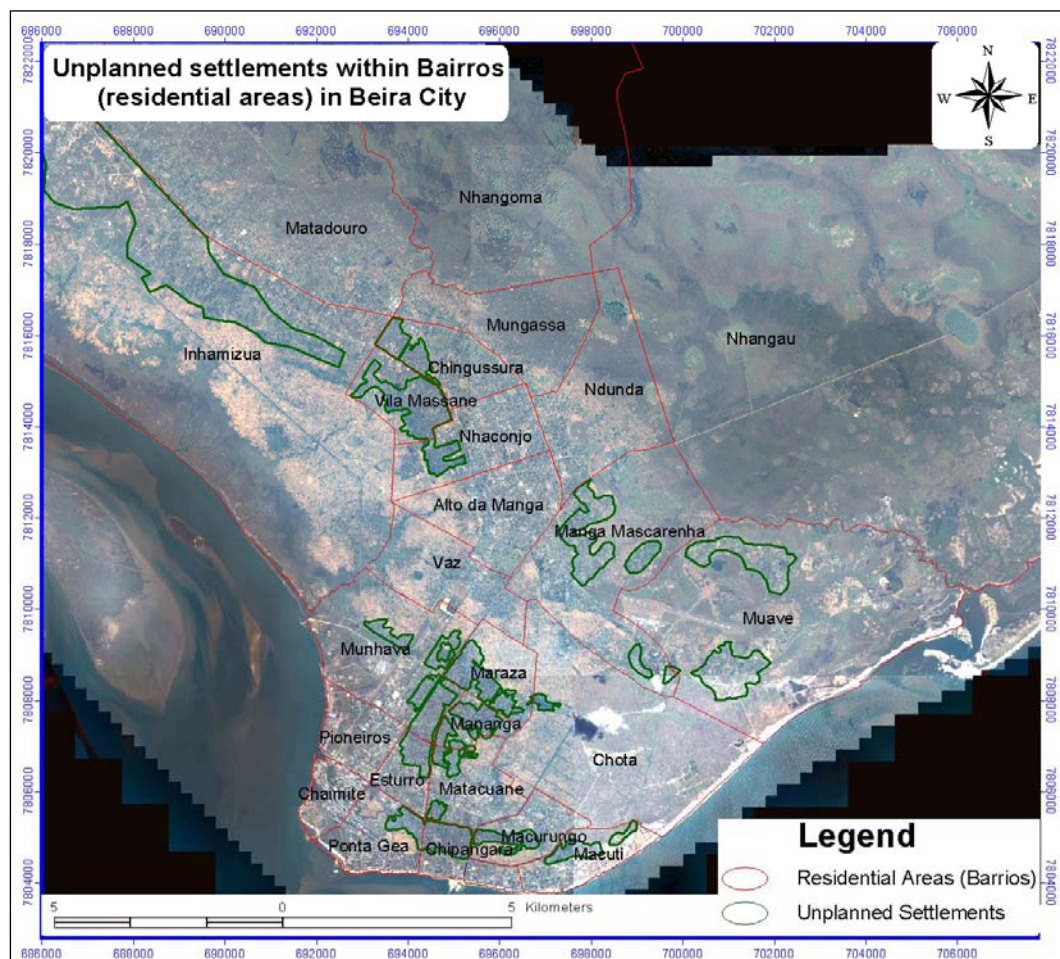
Table 2: Population dynamics of Beira City, 1970–2008

Year	Population	Source	% change
1970	113 770	INE Census	
1980	230 744	INE Census	102.82
1997	412 588	INE Census	78.81
2007	436 240	INE Census	5.73
2008	439 264	INE Projection	0.69

Source: INE 2008

During the civil war (1984–1992) and after the war ended in 1992, heavy migration from the rural provinces into Beira resulted in on average a 90.8% increase in the city’s population and the metropolitan area. The current urban population growth rate of around 5.73% per annum is one of the highest in sub-Saharan Africa.

Figure 2: Extent of unplanned settlements in Beira



Source: Prepared by the author

Note: The map is an Ikonos Image of Beira taken in 2006, using the Universal Transverse Mercator projection; Southern Hemisphere, Zone 36)

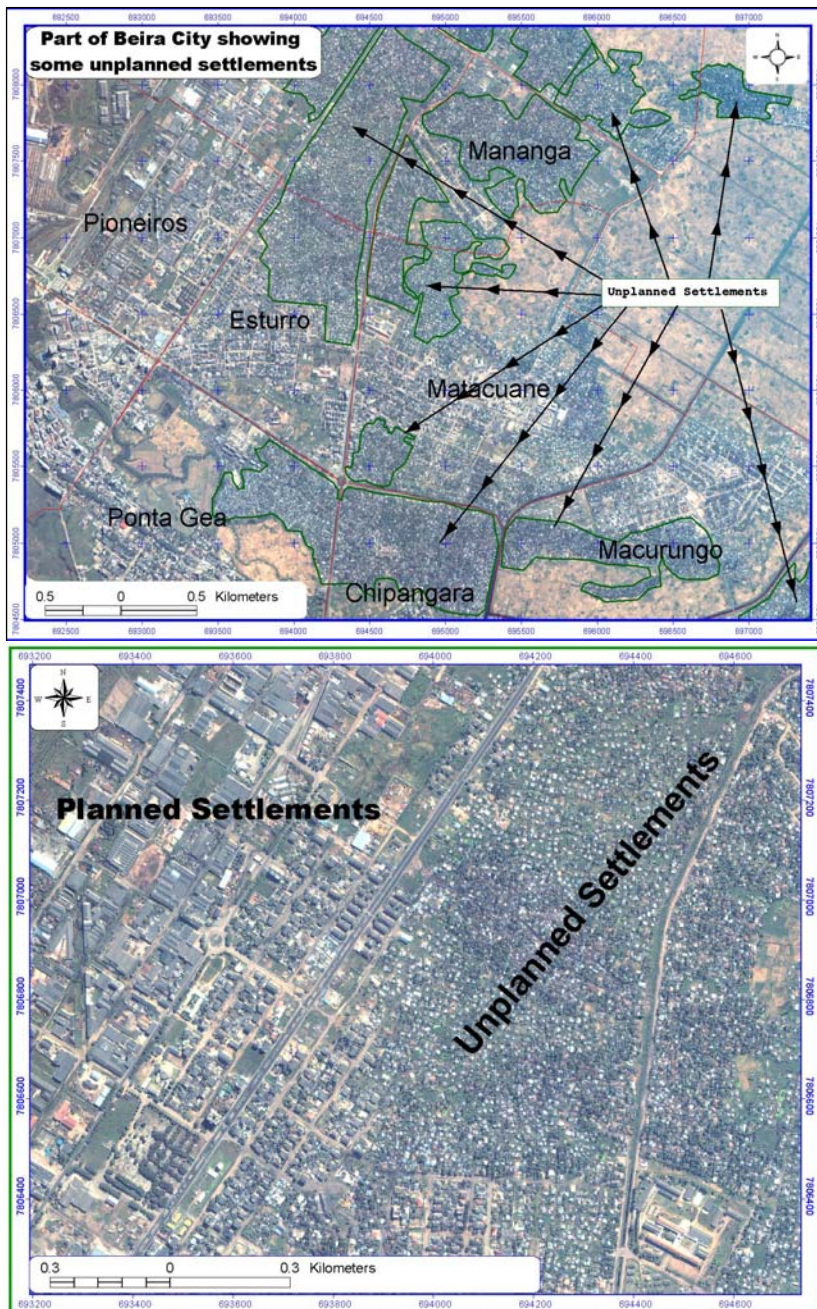
Most of the population increase in Beira is attributable to immigration during the civil-war period. Most of those immigrants found a safe haven in unplanned settlements within the city and on the urban fringe. As a result, more than 60% of the city's current urban households are 'illegal settlers' without access to basic infrastructure such as potable water, sanitation and waste management, and sustainable economic opportunities (McCusker 2000). Figure 3 shows a detailed are of Beira City including unplanned settlements.

2.2 Challenges of 'informal' settlements in Beira

The informal settlements in Beira (also known as spontaneous, unauthorised, slums, illegal settlements, etc.), are characterised by lack of basic urban facilities such as roads, drainage or piped water. Construction of buildings generally utilises traditional materials, mostly pole-and-mud houses. Unfortunately, the municipality knows neither the extent nor the exact number of inhabitants in these settlements and they use best estimates for planning purposes in most cases.

For example, more than 80% of the inhabitants in the unplanned settlements use pit latrines. When the groundwater level rises (note that most of Beira is below sea level), these pit latrines overflow further, causing waterborne diseases such as cholera. This is further exacerbated by the fact that Beira does not have any sewage treatment plant, and all raw sewage is discharged into the sea through a network of canals around the city.

Figure 3: Unplanned settlements in Beira City (detailed views)



Source: Prepared by the author.

Note: The map is an Ikonos Image of Beira taken in 2006, using the Universal Transverse Mercator projection; Southern Hemisphere, Zone 36

McCusker (2000) also notes that only 43% of the city's residents have access to piped water and of this number only 60% have access to water that meets the World Health Organisation's minimum standards for safe drinking. Nationally, access to safe water is enjoyed by only 50% of the population while access to sanitation is estimated at 39%. The increased pollution of water supplies associated with a deficient sewerage system or insufficient drainage and overbuilding in flood-prone areas where residents use latrines has made both formal and informal residents vulnerable to waterborne diseases. In 1997, for example, 11 000 people were treated for diarrhoea, while an equally significant

number were exposed to cholera resulting in 600 fatalities (UNHDR 2006).

As peace and stability have returned to the country, the City of Beira finds itself faced with multiple problems, including the need to expand employment opportunities for a rapidly growing population; and the need to address challenges of insufficient drainage and sewerage systems, water shortages, power outages, deficient road infrastructure, inadequate shelter and other shortcomings in city management over the years. Underlying these challenges, however, is the need to develop reliable and useable spatial databases for urban maintenance, management and planning (McCusker 2000). This underpins the need to address these challenges by developing programmes with relevant curricula to try and address these challenges. The UCM today is at the forefront of addressing such challenges through its Bachelor of Science (BSc) and Master of Science (MSc) programmes in Regional Development and Planning.

3. The Catholic University of Mozambique

The Universidade Católica de Moçambique (UCM), otherwise known as the Catholic University of Mozambique, was founded in 1995 with its headquarters in Beira. Overall, UCM is still in a phase of expansion, responding to the demands of a growing population and increasing numbers of students in Mozambique (Chilundo 2003) and the needs of the growing economy (Bolnick 2004). Alongside this expansion, there is also a move towards diversification of the degree programmes on offer, with special emphasis placed on new innovative courses in line with the government's decentralisation policy. UCM is one of the first private universities in Mozambique, and the first university to have its headquarters outside Maputo. In 1996 UCM was inaugurated with two faculties, the Faculty of Law and the Faculty of Economics and Management, in Nampula and Beira respectively. Today UCM has faculties in the provinces of Manica, Nampula and Niassa, Sofala, and Cabo del Gado and will be establishing other faculties in Tete and Zambezia provinces in 2008 and 2009 respectively (see Figure 4).

The Faculty of Education and Communication was established in Nampula (1999), and Faculties of Agriculture in Cuamba (2000); Medicine in Beira (2001); Tourism Informatics and Management in Pemba (2001); a Centre for Distance Education in Chimoio (2003); and a Faculty of Economics and Management in Chimoio (2006). The Centre for Geographic Information Systems (Centro de Informacao Geográfica (CIG)) was established in Beira in 1998 as a research and service centre focusing on applied remote sensing (RS) and geographic information system (GIS) and global positioning system (GPS) applied research.

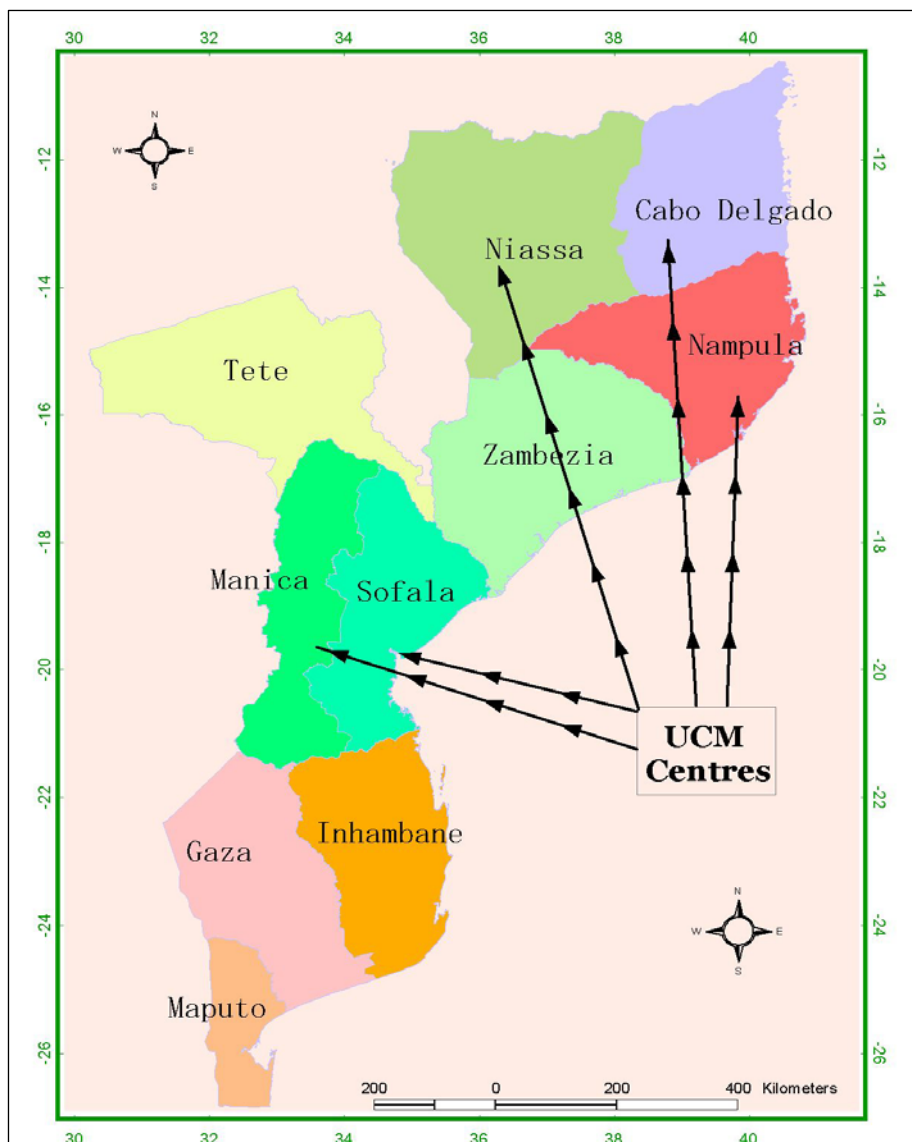
Planning and decision-making on any social, economic or environmental issue requires up-to-date and relevant data as well as the capacities to process and analyse these data. Spatial data availability, access and processing capacities continue to be a challenge in Mozambique (Saugene & Macome 2007; Urbano & Jansen 2007). CIG's mission, therefore, is to spearhead research in, and improve access to, availability of geographic data for Mozambique and to enhance regional capacities for data processing, analysis and decision-making.

3.1 Planning education at the Catholic University of Mozambique

In order to consolidate the achievements of CIG and to ensure the long-term sustainability of the centre, there was a need to diversify its activities by marrying its research activities with academic and professional education as well as with applied research. This was achieved by introducing the MSc programme in Regional Development Planning within CIG. This postgraduate programme covers aspects of land use, economic and environmental planning which combine economic development theories, environmental processes and regulation as well as several aspects of land use planning, with particular emphasis on specialist planning applications in applied GIS, RS and GPS. Students are expected to explore issues that focus on economic and regulatory policies for land use,

environmental impact assessment, environmental modelling, implications of land use policies and regional development planning at national, provincial, district and municipal levels. On the other hand, the BSc Honours programme in Regional, District and Town Planning is designed to offer a wide educational experience focusing on the built (cities/towns) and natural (rural) environment and impacts of economic, social, political and cultural change. While the GIS aspect of the programmes provides the theoretical and analytical (spatial) skills to understand both the nature of change and its impacts, the planning courses translate this understanding into action to ensure a better quality of environment for present and future generations.

Figure 4: UCM centres in different provinces of Mozambique



Source: Prepared by the author

3.2 Vision, goals and strategy of the planning programmes

The existing MSc curriculum and the BSc curriculum planned for 2009 are based on the philosophy that planners must develop integrated theoretical knowledge and analytical skills to analyse social, economic and environmental problems, and develop as well as evaluate public policies. However, planners also need to have knowledge of cross-cutting geographic/spatial technologies, besides

developing such professional skills as report-writing, oral presentation, computer use and team management in order to function effectively in a multidisciplinary and multicultural manner in various organisational and political environments. These skills form part of the course curriculum and enable our students to operate in the 21st century proactively.

Vision

It is the vision of the planning programmes at UCM to contribute to the progress and application of geo-information science in regional planning, by delivering superior spatially oriented information products, strategies and tools that build insights and enable advancement in planning research and regional development.

Goals

The programmes aim to provide innovative courses that address existing developmental needs of society and support government policies in Mozambique. The institutional goal of the programmes is the generation of knowledge and contribution to the development of the planning profession. The programme goal is to ensure that students have the knowledge and skills to conduct interdisciplinary research in a professional capacity, and guide change processes appropriate to different planning and development contexts.

Strategy

Planning is spatial in nature. Thus, the strategy is to impart knowledge and skills for collecting, analysing, presenting and managing geographic/spatial information for planning and management of environmental systems in the context of sustainable development. For these purposes, the environment is taken in its broad and integrated perspective, inclusive of the built and natural environments. Accordingly, 'spatial planning' becomes integral at national, regional and local levels in both urban and rural settings. This therefore entails the use of 'location-specific' information tools such as GIS, RS and GPS. Students are expected to learn how to use these geo-information tools in the management of land information, modelling and scenario-building during the planning process. On completion, the programmes should produce graduates with the ability to provide innovative solutions to complex spatial problems by preparing plans and formulating policies with a spatial orientation at different regional scales.

3.3 Rationale for the planning programmes

In the broadest terms, regional and town planning is the process by which humans attempt to control and/or design change and subsequent development of their surrounding environment in both rural and urban areas (Hall 2002). Planning involves strategic long-range planning as well as detailed micro-planning. The latter includes current development of built and natural environments and the legislative framework controlling land and land use. Accordingly, planning is closely allied with the disciplines of commerce, economics, sociology and ecology (University of Queensland 2008).

At the heart of planning studies is the regulation and development of land, land use and its implications for the ways in which people live. As such, planning education brings together skills from architecture and design, economics, geography, politics, environmental science and sociology, as well as other disciplines. Planning education has a practical focus in terms of providing the skills needed to manage change, as well as providing a conceptual framework that enables individuals to engage with the underlying complexity of the decision-making environment (Healey 2007). Planning is necessarily engaged with questions about values and the principles that should inform approaches to society and space (see for example Mason and Beard 2008, and Chettiparamb 2007). Planning is increasingly framed within the context of sustainable development and it is within this framework

that the courses for the planning programmes at UCM were framed.

3.4 Conceptual framework for the planning courses

GIS, RS and GPS are now key technologies in a range of fields including rural and urban planning, regional development, ecological studies, water resources evaluation and management, forestry, conservation, water resources and hydrology, among other disciplines. Furthermore, RS is a rapidly expanding discipline with multiple applications in planning, forestry, geology, defence/intelligence, disaster management, conservation, oceanography, meteorology, urban planning and agriculture (Campbell 2002). Given the above scenario, these geo-information courses are regarded as the cornerstones of both the MSc programme in Regional Development Planning (Figure 5) and the BSc in Regional, District and Town Planning (Figure 6).

MSc courses

The MSc courses in planning and regional development will give the student a solid grounding in the planning field by providing the necessary theoretical framework for regional development planning. The other courses covering aspects of environmental management, research and tools for planning will be practically oriented, giving the student the hands-on experience necessary to produce proactive planners. Students will therefore be evaluated in their understanding of conceptual theory and techniques (practical skills) taught in the programme. Figure 5 shows the conceptual framework within which these courses were framed and Table 3 shows how the courses are delivered in the MSc programme.

Figure 5: Conceptual framework for the MSc in Regional Development Planning

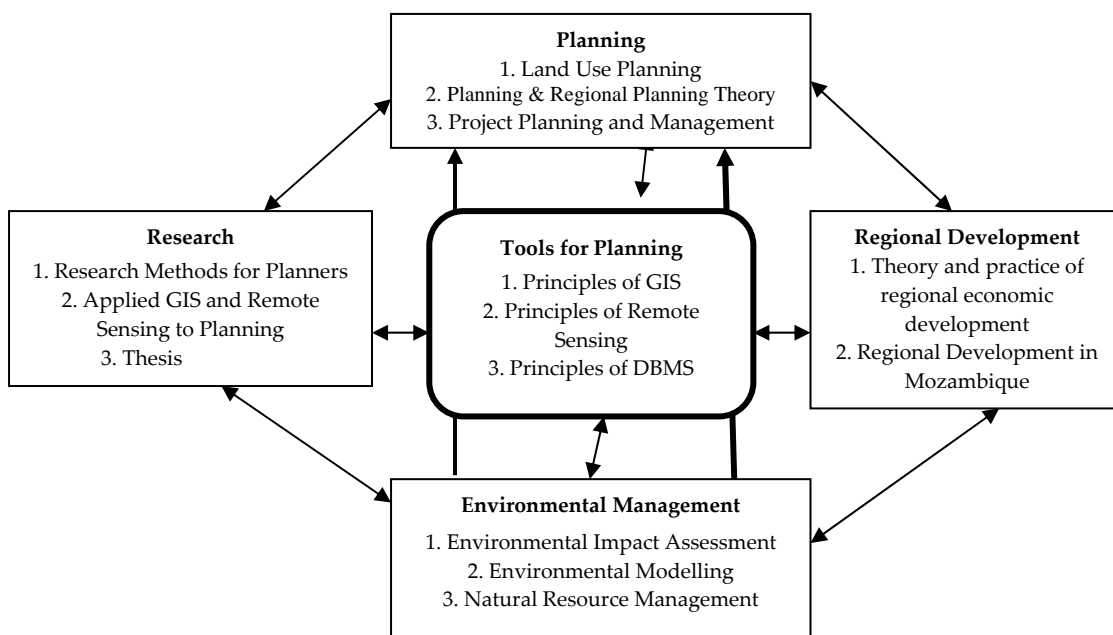


Table 3: Courses for the MSc in Regional Development Planning

Year	Semester	Courses	
Year 1	Semester I	Planning & Regional Planning Theory	1. The foundation course (s)
		Land Use Planning	
		Regional Development in Mozambique	
	Semester II	Research Methods in Planning	
		Principles of GIS	
		Natural Resource Evaluation and Management	
Year 2	Semester II	Theory and practice of regional economic development	
		Environmental Impact Assessment	
	Semester III	Principles of Remote Sensing	
		Environmental Modelling	
		Project Planning and Management	
		Principles of Database Management Systems	
	Semester IV	Applied GIS and remote sensing in Planning	
		Dissertation / Thesis	
Seminars			
Presentation of dissertation topics proposal			
		Presentation of dissertation results	

BSc Honours courses

The BSc Honours in Regional, District and Town Planning provides students with a critical understanding of the theoretical and technical knowledge that is required to identify problems, values and attitudes involved in planning and the skills to formulate, evaluate and implement planning policies at the national, regional, urban, rural and local scales.

The programme's central strategy is to primarily embrace spatial planning, but it will not be limited to the use of spatial planning techniques only as it will also incorporate traditional planning approaches. 'Spatial planning goes beyond traditional land use planning to bring together and integrate policies for the development and use of land with other policies and programmes which influence the nature of places and how they function' (ODPM 2004) and includes methods used to influence the distribution of people and activities at various scales such as urban planning, regional planning, environmental planning and national spatial planning.

The BSc programme encompasses the integration of environmental, economic and social aspects of development from micro to macro scales. This covers land use planning, urban design, transport and infrastructure planning, use and extension of information technology, conservation, resource management, environmental monitoring, planning legislation and practice, commercial /industrial development, policy-making and implementation. Spatial planning involves integrating the different planning disciplines, including knowledge of the environment, by means of spatial planning techniques. Figure 6 and Tables 4–7 present the conceptual framework of the programme and the way in which these courses are delivered over a four-year period, respectively.

Figure 6: Conceptual framework for the BSc Honours in Regional, District and Town Planning

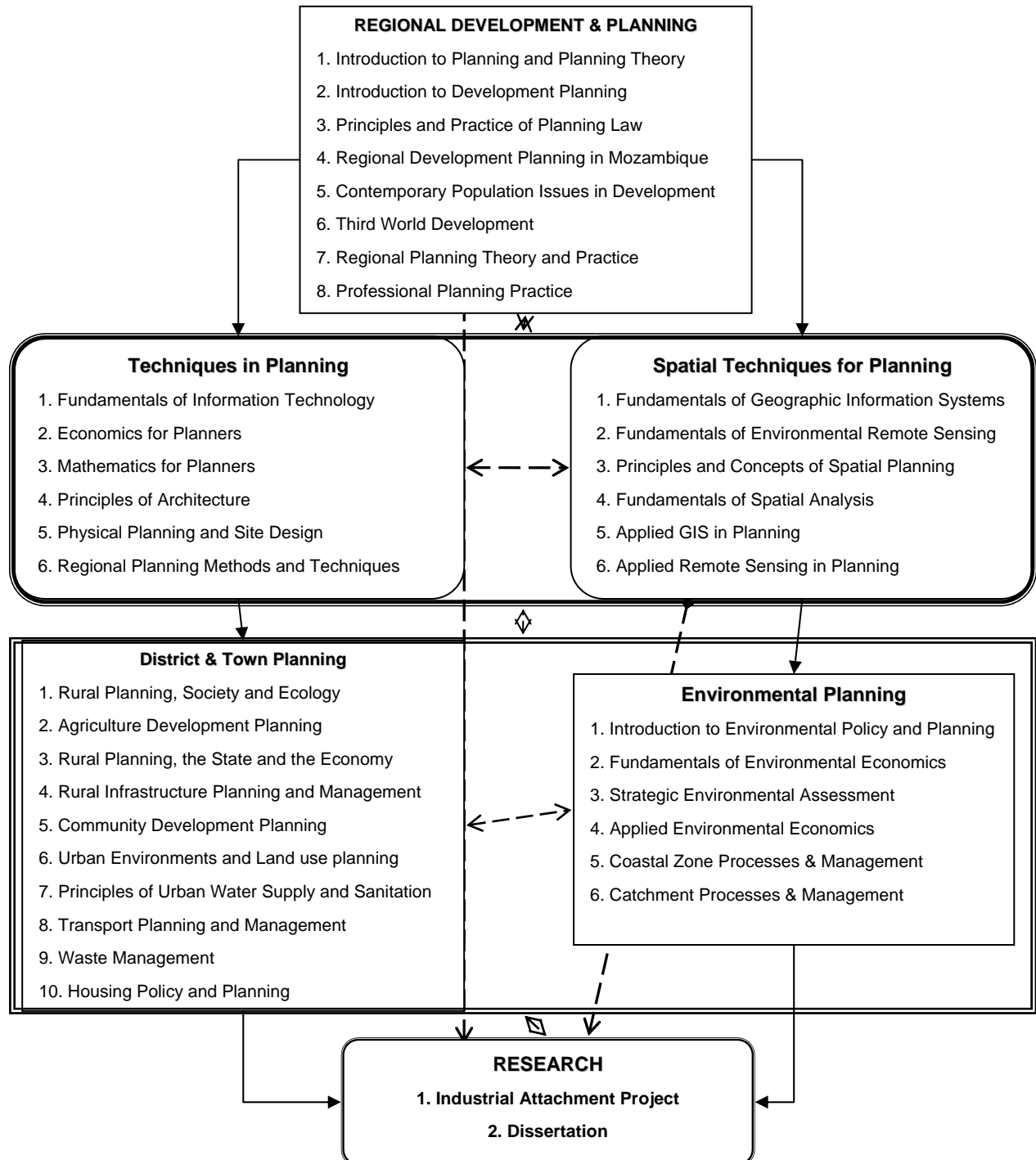


Table 4: BSc Honours in Regional, District & Town Planning: First year

Semester	Course code	Course description	Weight	Designation
Semester 1	H RTP101	Introduction to Planning and Planning Theory	1	Core
	H RTP102	Introduction to Development Planning	1	Core
	H RTP103	Introduction to Land use Planning	1	Core
	H RTP104	Introduction to Environmental Policy and Planning	1	Core
	H RTP105	Economics for Planners	1	Optional
	H RTP106	English For Communication Skills	1	Optional
Semester 2	H RTP107	Rural Planning, Society and Ecology	1	Core
	H RTP108	Rural Planning, the State and the Economy	1	Core
	H RTP109	Regional Development Planning in Mozambique	1	Core
	H RTP110	Principles and Practice of Planning Law	1	Core
	H RTP111	Contemporary Population Issues in Development	1	Optional
	H RTP112	Third World Development	1	Optional

Table 5: BSc Honours in Regional, District & Town Planning: Second year

Semester	Course code	Course description	Weight	Designation
Semester 1	H RTP201	Mathematics for Planners	1	Core
	H RTP202	Fundamentals of Information Technology	1	Core
	H RTP203	Fundamentals of Geographic Information Systems	1	Core
	H RTP204	Fundamentals of Environmental Remote Sensing	1	Core
	H RTP205	Principles and Concepts of Spatial Planning	1	Optional
	H RTP206	Fundamentals of Spatial Analysis	1	Optional
Semester 2	H RTP207	Fundamentals of Environmental Economics	1	Core
	H RTP208	Principles of Studio Design and Architecture	1	Core
	H RTP209	Physical Planning and Site Design	1	Core
	H RTP210	Urban Environments & Land Use Planning	1	Core
	H RTP211	Principles of Urban Water Supply and Sanitation	1	Optional
	H RTP212	Transport Planning and Management	1	Optional
	H RTP213	Waste Management	1	Optional

Table 6: BSc Honours in Regional, District & Town Planning: Third year

Semester	Course code	Course description	Weight	Designation
Semester 1	H RTP301	Housing Policy and Planning	1	Core
	H RTP302	Regional Planning Theory and Practice	1	Core
	H RTP303	Professional Planning Practice	1	Core
	H RTP304	Project Planning and Management	1	Core
	H RTP305	Rural Infrastructure Planning and Management	1	Optional
	H RTP306	Community Development Planning	1	Optional
	H RTP307	Agriculture Development Planning	1	Optional
Semester 2	H RTP350	Industrial Attachment Project	2	Core

Table 7: BSc Honours in Regional, District & Town Planning: Fourth year

Semester	Course code	Course description	Weight	Designation
Semester 1	H RTP401	Regional Planning Methods and Techniques	1	Core
	H RTP402	Applied GIS in Planning	1	Core
	H RTP403	Applied Remote Sensing in Planning	1	Core
	H RTP404	Applied Environmental Economics	1	Core
	H RTP405	Strategic Environmental Assessment	1	Optional
	H RTP406	Coastal Zone Processes & Management	1	Optional
	H RTP407	Catchment Processes & Management	1	Optional
Semester 2	H RTP450	Dissertation	4	Core

The core of the planning curriculum consists of planning theory courses for planning and development, which assist students in developing an understanding of planning institutions and of social, economic, political, administrative and legal systems, and provide the context for policy analysis. The core is also designed to help students develop the ability to identify broader social goals of planning in developing countries.

For rural planning, the emphasis is on interacting systems of people, activities, natural resources and environments and the socio-economic and socio-political processes affecting such areas. This was necessitated by the observation that rural areas form a very different planning and development context from that of urban areas, and pose different challenges. Within the rural areas the concern is with the physical environment, since there is every need to sustain ecological systems. This can be achieved by developing an understanding of the human-environment relationship and defining sensitive and sustainable resource utilisation, development and management options.

Town planning aspects are covered on a sectoral basis, dealing with the most pertinent issues prevalent in urban areas such as transport problems, housing shortages, waste management, water and sanitation provisions and broader aspects underlying physical planning.

The courses covering aspects of tools for planning and research are practically oriented, giving the student the hands-on experience necessary to produce proactive planners. Planning tools help to develop analytic skills, both quantitative (e.g. mathematics, statistics, spatial statistics, surveys, regional analysis) and non-quantitative, to perform evaluations and to produce plans. Students will therefore be evaluated in their understanding of conceptual theory and on their proficiency in techniques (practical skills) taught in these courses, on a 50% : 50% basis.

3.5 Structure of the programmes

The MSc programme is taught over two academic years, and the BSc programme over four academic years.

The MSc programme

The MSc programme is offered on a two-year full-time basis, with the study programme consisting of two parts: the taught and research components (Table 3). The taught component comprises 13 compulsory and core courses. A full course consists of 60 hours of formal instruction. The research component consists of research seminars and a dissertation, successful completion of which leads to the award of a Master's degree in Regional Development Planning.

The BSc programme

The programme will be undertaken in four years of study as outlined in the following sections. The

four-year BSc covers all the core spatial planning topics that are considered critical for planning practice, and all the knowledge, skills and values/attitudes necessary for the development of Mozambique and beyond. All the courses of the BSc programme have an equal weighting, except for the third-year project and the dissertation (Tables 4–7).

First year of study (Year 1)

In the first year, students will be exposed to the fundamental principles and concepts that apply to the discipline of regional and town planning. This foundation year will also cover essential development-oriented courses. Thus students will be strongly encouraged to develop an understanding of the essential principles and concepts by exploring the theory and practice of planning and the root needs of planning in third-world countries. They will also acquire an appreciation of the economics involved in planning and development, leading to a focus on planning and development in Mozambique. The courses expected to be covered in the first year are as shown in Table 4.

Second year of study (Year 2)

The second year will be mainly dedicated to the study of tools which can be used in planning. During this year students will develop skills in data gathering, processing, interpretation and analysis using computer applications. This will equip students to go out into practice in local planning authorities or planning consultancies in the third year. The courses expected to be covered in the second year are as shown in Table 5. During the final semester of the second year students will start formulating their research thesis. This will be an individual project providing the students with an opportunity to undertake original research on an issue that interests them.

Third year of study (Year 3)

During the third year, students undertake five courses (Table 6) in the first semester and then go on attachment in the second semester. The second-semester attachment will be undertaken within a planning- or development-oriented practice with a public or private organisation. Such organisations include local planning authorities, private sector consultants and a range of other organisations, including environment-oriented agencies. The experience gained during this year is invaluable to students and equally so to prospective employers. As such, students are evaluated by both the department and the organisation within which each student will be placed. The student is also expected to produce a short report of his/her activities during the course of the semester of placement.

Fourth year of study (Year 4)

The aim of the fourth year is to develop the key professional planning ability to utilise knowledge of planning ideas, theories and skills and apply them to practical planning issues and problems within a clear framework of values. Thus students are expected to specialise in either urban or rural planning and to complete their research dissertation in any area of their chosen specialisation (Table 7).

3.6 Teaching, assessment and evaluation

Different teaching and assessment methods are used for the BSc and MSc programmes. Overall, these include lectures, essays, group and individual work and formal examinations, culminating in a research thesis/dissertation. In addition group work, minor research papers, presentations and discussions are used for assessments. For the MSc, the predominant teaching method is the 'traditional method' of lectures. However, for the BSc the problem-based learning approach is used.

Assessment

Assessment is aimed at providing information about the student's level of assimilation of content and progress. It is this information that determines whether a student should or should not proceed to the following year. Continuous assessment comprises two assignments, some group or individual class presentations and a final examination. It is done by individual teachers at subject level. Most importantly, the assessment provides the students with an instrument to help them see how well they are faring and how much more effort they should put in to ensure that they reach the required standards to pass from one year to another and eventually graduate.

Evaluation

To guarantee quality, courses will be subjected to continuous monitoring, evaluation and adjustment. The evaluation will be done by staff and students, the rector's office and visiting specialists invited for the purpose.

3.7 Admission requirements

MSc programme

For the MSc, a good honours degree (an average of 15/20 points or equivalent) in the fields of geography, environmental science, economics and/or any degree approved by the Departmental Board is required. Applicants with relevant practical experience are also considered. Eligible candidates may be interviewed. Students must also have a working knowledge of computer systems, proficiency in English and the ability to use descriptive statistics, although these skills will be further developed.

BSc programme

Three subjects with A-level passes are required, normally including geography, and a pass in mathematics at ordinary level with a C or better.

3.8 Determination of examination results

In order to graduate with an MSc in Regional Development Planning, a student must pass each of the two parts of the programme (the taught component and the research component). In order to proceed to the dissertation a candidate must pass 12 of the 13 courses including all the core courses. A candidate who passes both the taught and the research components of the programme shall be awarded a Master's degree in Regional Development Planning. For the BSc programme a student is expected to accumulate at least eight course units every year. However, all the core courses have to be passed in order to graduate with a BSc Honours degree in Regional, District and Town Planning.

4. Constraints and outlook

Mozambique is a Portuguese-speaking country; however most of the literature in regional development, planning and geo-information science is in English. This presents pertinent challenges both in trying to train personnel and in carrying out research. Recently the country joined the Commonwealth and English is now being taught from primary school. With time it is hoped that the level of reading, writing and understanding of the English language will improve and hence most people will be able to access additional literature.

Currently the planning programmes are dependent on hiring staff, mostly from Zimbabwe. However, if the situation in Zimbabwe improves, the department might have difficulties in delivering its

programmes. At the same time it is hoped that, through the MSc programme, there will be enough personnel (i.e. Mozambicans) trained to later teach at BSc and MSc levels.

The other major challenge facing the department is the availability of up-to-date books, especially in the fields of regional development and planning. The university library is not well stocked with current literature. We hope that some of our proposals for funds to acquire these books will sail through. Furthermore we are in the process of setting up a physical as well as a computer laboratory. Equipment for both laboratories still has to be sourced, and fees from students alone are inadequate to furnish these laboratories. With the expansion of the programme, we will also need to acquire more computers for students' use. Compounding this challenge is the absence of a centralised library system. At the Catholic University, each faculty handles its own procurements. At the moment we are trying to pool our resources to establish a centralised library system which will enable students from different disciplines to work together.

In the short term we intend to develop and hold short courses on urban planning, urban management, urban policy analysis and implementation, and housing provision (especially housing delivery issues). This is intended to increase people's awareness of our planning programmes in general. Challenges to this include a shortage of skilled personnel in the necessary fields; hence the need to engage expatriates, which comes at a higher cost. In the medium term there may be a need to have a continuous review of the existing courses, bearing in mind events and processes in urban development and management which may have to be included in the current courses, and other material that may have to be removed in line with developments in the field. In the long term we will be offering new degree programmes (like our BSc in Regional, District and Town Planning scheduled for 2009), in line with the needs of the society and country at large. More programmes are also likely to be introduced in future at different academic levels, from diploma to MSc/MA level.

5. Conclusion

For all our programmes, the courses in planning and regional development will give the student a solid grounding in the planning and development fields by providing the necessary theoretical framework for regional development and planning. The other courses, covering aspects of environmental management, research and spatial tools for planning are practically oriented, giving students the necessary hands-on experience. Students are therefore evaluated on their understanding of conceptual or theoretical knowledge and technical or practical skills. The regional development and planning programmes are designed to equip graduates for employment in development-oriented research, planning, valuation, education, management and consultation in both the public and private sectors, where they can contribute meaningfully to sustainable regional development at different levels, from district and provincial to national and international levels.

Geo-information science symbolises the convergence of innovation in geographical analysis and computer technology. Since the late 1970s, it has transformed itself from just an academic research tool into a useful and cost-effective tool of planning and analysis, deployable in any spatial development initiative ranging from environment to infrastructure planning, development, operations and management. As such, and as outlined above, all our programmes are centred on spatial planning, hence the use of GIS, RS and GPS in planning and development. This is what makes our planning programmes relevant in the 21st century, given the planning challenges faced by Mozambique in particular and the world at large. However, we still face big challenges in terms of the adequacy of books, computers and qualified staff for all our planning programmes.

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