2.5.1 Applicability to Ugu

The district municipality needs to craft its IDP and LED programmes around these cascaded national and provincial policies. This will ensure that there is common understanding of issues that need to be addressed. This in turn will go a long way in co-ordinating government efforts around eradicating under development and thus bring about prosperity in an integrated fashion. The Ugu DGDS thus plays an integral role in the development Ugu's 2015/16 IDP Review in ensuring a common goal for 2030.

2.6 Spatial Planning and Land Use Management Act (SPLUMA)

The SPLUMA seeks to bridge the racial divide in spatial terms and to transform the settlement patterns of the country. The Act will address the legacy of the discriminatory, inefficient and costly special pattern that puts a considerable burden on the public resources. The Act will also ensure that the restructuring of South African cities, towns and settlements is in line with priorities and principles of the democratic government. Furthermore, it aims to bridge the racial divide in spatial terms and to transform the settlement patterns of the country in a manner that gives effect to the key constitutional provisions. The Act has six objectives as listed below.

a) Provision of a uniform, effective and comprehensive system of spatial and land use management;

b) Ensuring of a spatial planning and land use management system that promotes social and economic inclusion;

c) Provision of development principles and norms and standards;

d) Provisions for a sustainable and efficient use of land;

e) Provision of cooperative government and intergovernmental relations amongst the national provincial and local spheres of government; and

f) Redressing imbalance of the past and ensuring of equitable application of spatial development planning and land use management systems.

Furthermore, the Act provides five principles that must be applied to all aspects of spatial development planning, land development and land use management. These principles are outlined in Table 2.7.1.

Table 2.7.1: SPLUMA Development Principles
Source: Spatial Planning and Land Use Management Act, No.16 of 2013

Principle	Definition	Applicability to Ugu
Spatial Justice	Concerned with the past spatial and other development imbalances through improved access and ensuring the inclusion of previously disadvantaged communities. Furthermore, the land development procedures need to accommodate access to secure tenure.	The focus of development on urban coastal strip in the past has resulted in an imbalance development leading to the rural communities always legging behind. The district family is also on a process of implementing wall to wall schemes which are anticipated have an impact reshaping the spatial footprint of the district.

Principle	Definition	Applicability to Ugu
Spatial Sustainability	For viable communities there needs to be promotion of land development to happen within the fiscal, Institutional and administrative means. The protection of prime and unique land should be given special consideration and the consistency of land use measures in accordance with the environmental management tools. Furthermore the future and current costs of infrastructure and social services provision in land developments needs to be considered by all parties.	One of main the economic contributors in Ugu is agriculture and thus the agricultural land needs to be protected to ensure continued productivity and preservation. Furthermore, the DGDS talks about Strategic Infrastructure, that needs to be properly costed and be considered by all parties involved. The environmental viability is also of utmost importance as tourism is the key economic contributor in the district.
Efficiency	The land development should optimise the use of existing resources and infrastructure and the decision making procedures to be designed in a way that limits negative financial, social, economic or environmental impacts.	The need for optimisation of existing resources and infrastructure has been identified in Ugu and the importance of infrastructure operation and maintenance plan emphasised to a longer lifespan. Furthermore, even the decision making with regards to infrastructure deployment is guided by relevant policies and plans to ensure integrated implementation.
Spatial Resilience	In ensuring sustainable livelihoods in communities most likely to suffer the impacts of economic and environmental shocks, the spatial plans, policies and land use management systems flexibility needs to be accommodated.	With the high levels of poverty and unemployment in Ugu there is a need for to ensure sustainable livelihoods and SPLUMA offers that opportunity through spatial and environmental plans and policies flexibility is accommodated.
Good Administration	Ensuring an integrated approach by government (all 3 spheres) to land use and land development as guided by spatial planning and land use systems embodied in the Act. All sectors needs to ensure they provide necessary inputs and comply with all the prescribed requirements. There must also be transparency in policies, legislation and procedures so that members of the community are empowered and informed.	Through the development of IDP the district aims to ensure an integrated approach inclusive of all departments and local municipalities. Public participation mechanisms are also in place to ensure transparency and the members of the community are kept informed and empowered.

CHAPTER 3: SITUATIONAL ANALYSIS

The Situational Analysis component of the Integrated Development Plan (IDP) provides a more concise snapshot of the key elements of the Status Quo. The information presented is a combination of desktop analysis, the Ugu District's Growth and Development Strategy (GDS) participatory process, comprehensive community engagement workshops, 2011 census by Statistics South Africa as well as from targeted interviews and discussions.

3.1. Cross Cutting Interventions

The Spatial Development Framework which informs the major part of this section forms an integral part of the IDP. It identifies what physical / spatial development should take place and where, and also provides the physical location and spatial interrelationship of social, economic, environmental development. It provides guidance for all future development in Ugu. The Framework does not identify every detail but establishes the strategic development direction. Furthermore this analysis is also informed by the DGDS document.

3.1.1. Regional Context

The spatial pattern of the Ugu District Municipality resembles a "T" shape where areas along the coast have a well developed infrastructure and thus a reasonable economic growth, whereas the hinterland is characterized by the poor infrastructural provision and high unemployment levels. Ugu has some of the best examples of unspoiled sub-tropical bush-land and forest, as well as cultivated land and small rural villages, contrasted by bustling urban centres and major industrial complexes.

Ugu District Municipality is a favourite tourist destination, and includes the well established coastal towns of Port Shepstone, Pennington, Margate and Hibberdene. The modern N2 highway runs through Ugu parallel to the sea, passing Port Shepstone, the seat of the District Municipality.

There has been gradual change in rural settlement patterns, from a much dispersed scattered settlement pattern to a concentration of residential sites around the access roads. The change has also partly been encouraged by a decline in agricultural activities over the last 100 years combined with a growing dependence on wage employment (dominated by migrant employment on the mines) and state grants

The broken topography of the area is another factor which has strongly influenced settlement patterns, particularly in the hinterland. The broken topography has restricted not only the dispersal of homesteads, but also large-scale or commercial agriculture within the major river catchments, such as the Umzimkhulu and Umtamvuana Rivers. As a result, large tracts of Eastern Valley Bushveld, Scarp Forest, and Pondoland-Natal Sandstone Coastal Sourveld remain intact with little transformation.

These areas thus present an excellent opportunity for community-based eco-tourism initiatives (majority of areas fall within traditional areas) and maintaining ecological linkages between formally protected areas, such as Oribi Gorge Nature Reserve and Mtamvuna Nature Reserve.

The coastline is for obvious reasons another significant factor structuring development within the Ugu District Municipality. In contrast to the North coast development has taken place in a relatively narrow band or in a ribbon-like fashion along the south coast. The aesthetic and amenity value of the coastal zone makes this area particularly attractive for residential and holiday / hospitality type developments. As a result, there is ever increasing pressure to develop the last remaining open spaces along the coastline.

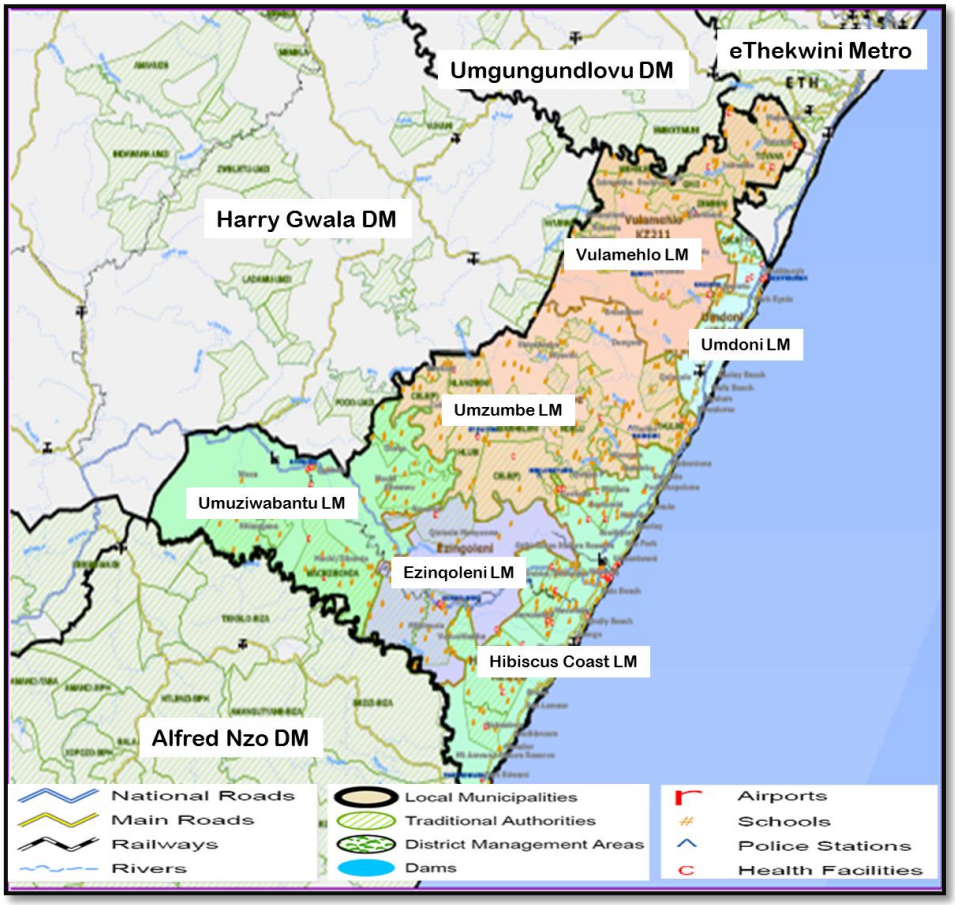

Figure 3.1.1.1: Ugu District Regional Context
Source: Ugu District SDF, 2012

3.1.2. Administrative Entities

Ugu District Municipality is one of the ten (10) District Municipalities, located at the most southern tip of the province's coastline, covering 112km of the Indian Ocean. It is bordered by the Eastern Cape Province to the South, Indian Ocean to the East, Sisonke and Umgungundlovu to the West and eThekwini to the North. It comprises of six local municipalities which are Ezinqoleni, Umuziwabantu, Hibiscus Coast, Umdoni, Umzumbe and Vulamehlo. According to the Statistics South Africa, the District Municipality DC 21 is 5866 km² in extent.

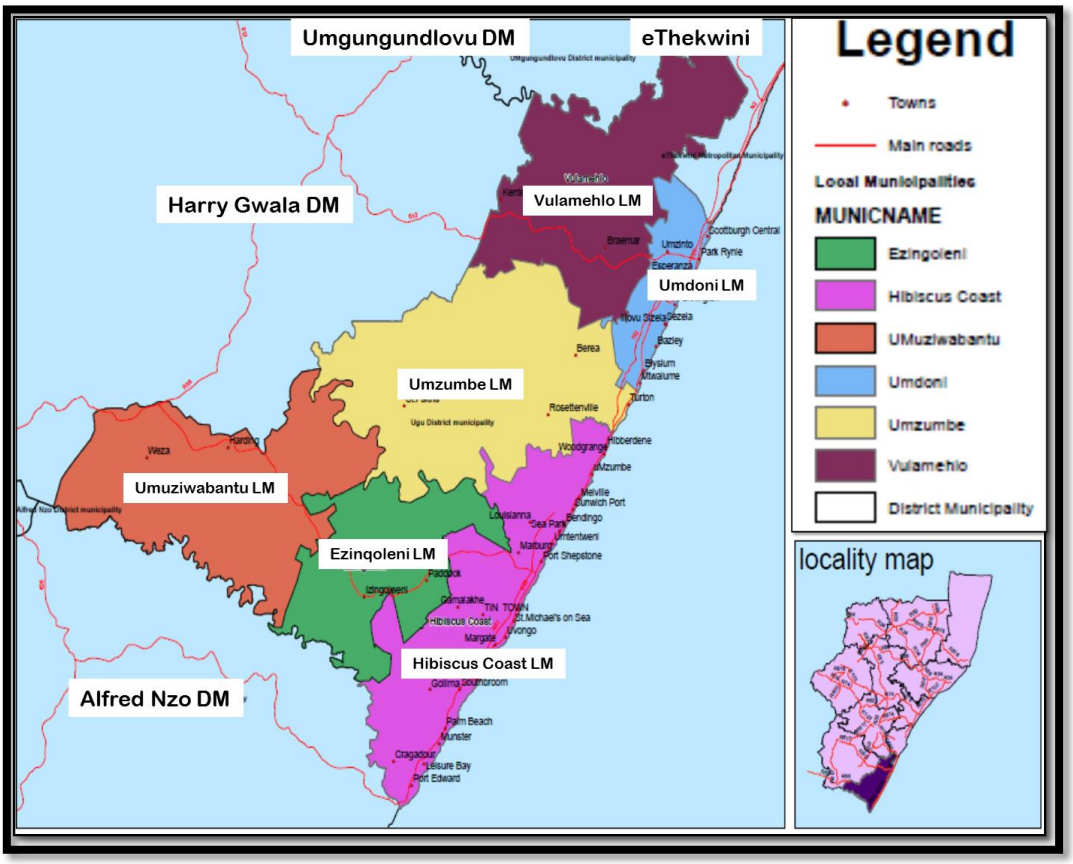

Figure 3.1.2.1: Ugu District Locality Map
Source: Ugu District Municipality GIS, 2013

3.1.3. Existing Nodes and Corridors

In terms of nodes, three types of nodes have been identified in the Ugu District area of jurisdiction which are primary, secondary, tertiary, quaternary and rural service centre nodes as reflected in Figure 3.1.3.1.

Primary Node: An urban centre with very high existing economic growth and the potential for expansion thereof. Provides service to the national and provincial economy. The identified primary node in the Ugu District Municipality area of jurisdiction is the Port Shepstone node.

Secondary Node: An urban centre with good existing economic development and the potential for growth. Services the regional economy. Scottburgh and Harding has been identied as the secondary node in the the Ugu District Municipality area of jurisdiction.

Tertiary Node: A centre which should provide service to the sub-regional economy. The areas such as Port Edward, Margate, Hibberdene, Park Rynie,and Umzinto have been identified as the tertiary node the Ugu District Municipality area of jurisdiction.

Rural Service Centre – A centre which should provide service to the localised rural economy. These centres include areas like Turton / Nyangwini, Dududu and Izingolweni and have been identifies as the Rural Service Centre in the Ugu District Municipality area of jurisdiction.

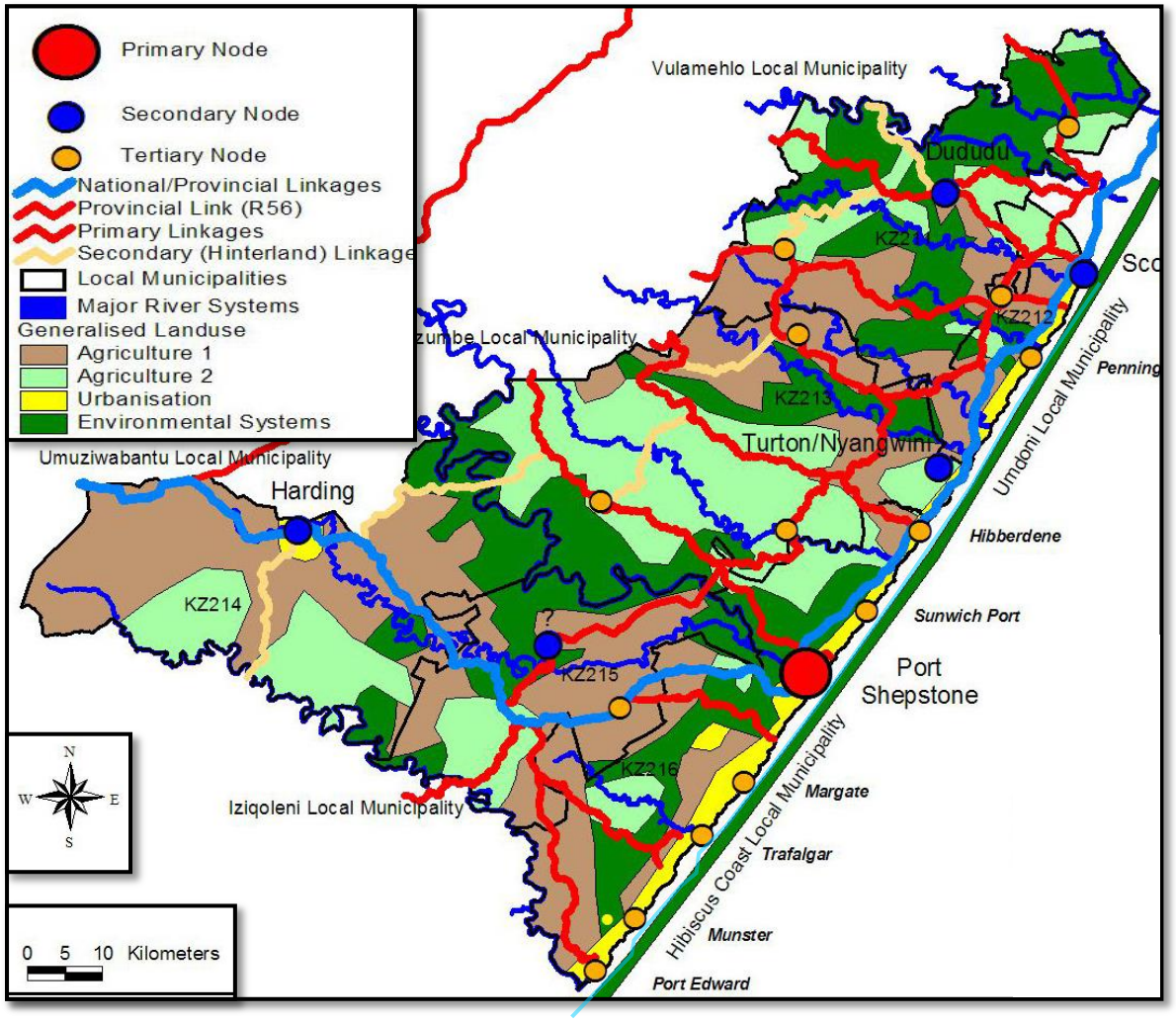

Figure 3.1.3.1: Ugu District Nodes
Source: Ugu District GIS, 2015

In terms of the development corridors two main types of development corridors are identified which are namely, primary and secondary development corridors.

Primary Corridor: A corridor with very high economic growth potential within all three sectors which serves areas of high poverty densities. These corridors include value-adding areas, such as Scottburgh, Hibberdene, Port Shepstone to Margate, Umtamvuna, and Port Edward. Furthermore, the district understands that the entire coastal strip forms an 'Economic support area', as well as Harding.

Secondary Corridor: A corridor serving areas of high poverty levels with good economic development potential within one or two sectors. In terms of the secondary corridors in the Ugu District Municipality area of jurisdiction, the importance of a corridor from Port Shepstone, through St Faiths, towards Ixopo is highlighted; and the indication of most of the rural hinterland as 'mandated service delivery areas', 'agricultural investment areas' and 'social investment areas'. Many comprise of all three.

Tertiary corridors: i.e. local level development corridors, are not identified in the district SDF, they should however be established in the local municipality SDFs. These corridors are expected to link local access roads and individual communities into the secondary corridor system and to the relevant centres of activity. Development located within these corridors would primarily address local requirements and opportunities and will inter alia accommodate local tertiary centres.

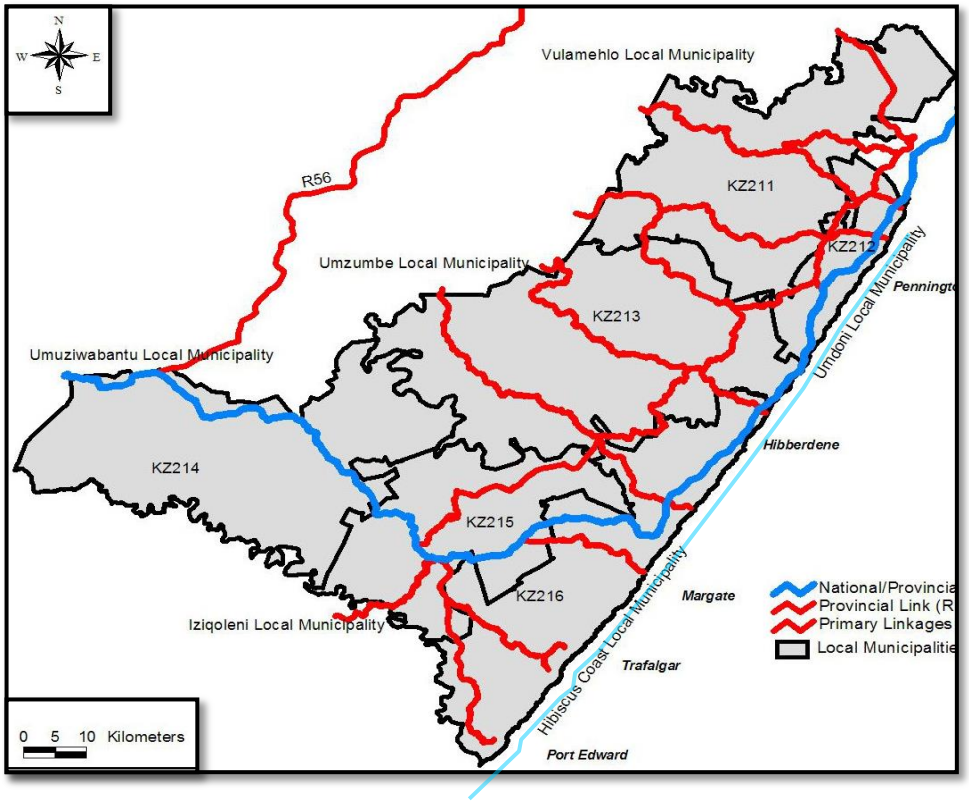

Figure 3.1.3.2: Ugu District Primary Coridors
Source: Ugu District GIS, 2015

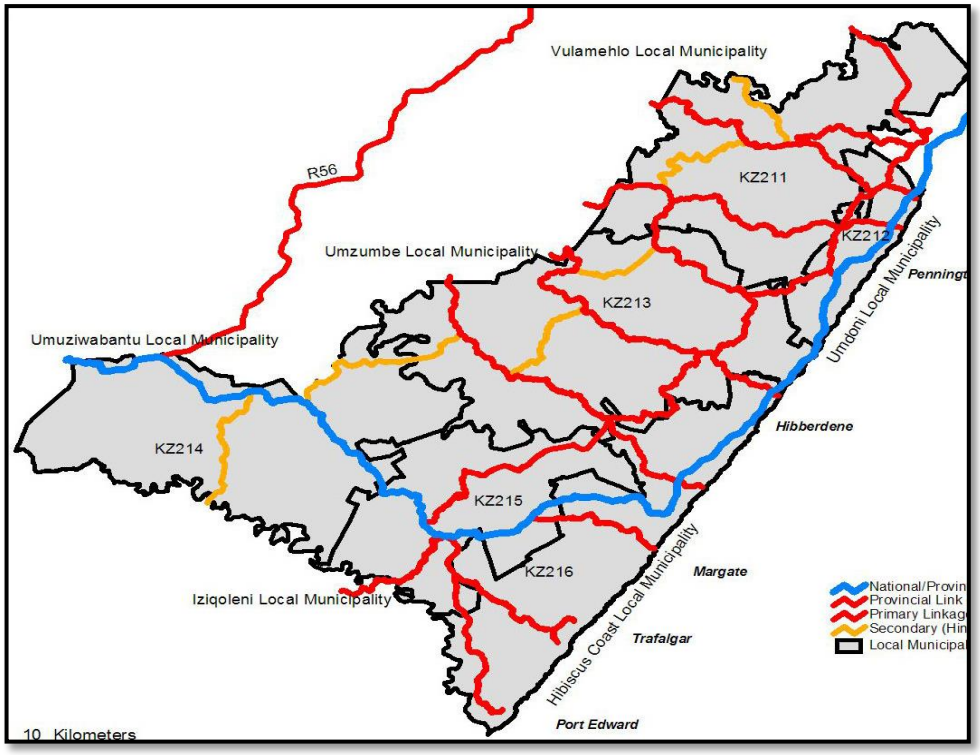

Figure 3.1.3.3: Ugu District Secondary Coridors
Source: Ugu District GIS, 2015

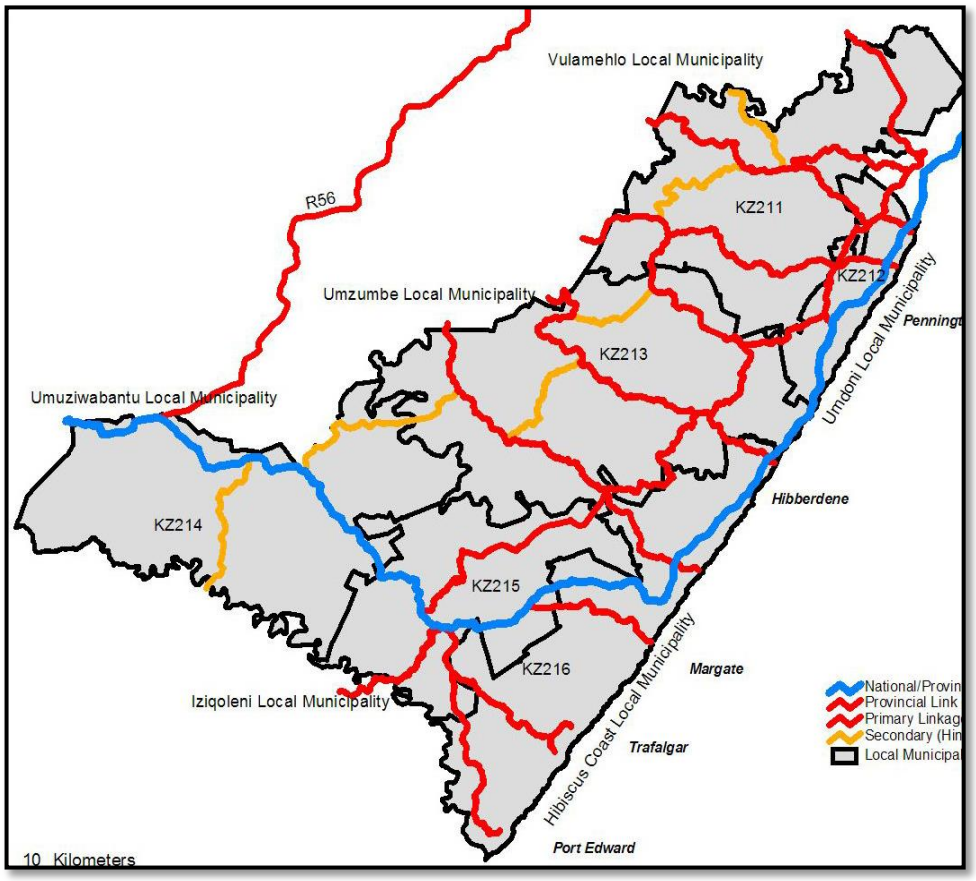

Figure 3.1.3.3: Ugu District Tertiary Coridors
Source: Ugu District GIS, 2015

3.1.4. Broad Land Uses

In terms of the settlement type in Ugu District, statistics SA breaks it into three broad categories, which are urban, traditional and farms. The traditional settlement (58.7%) type is dominant followed by the farms (37,5%). These become particularly important when it comes to service delivery and the strategies that needs to be put in place to ensure speedy service delivery.

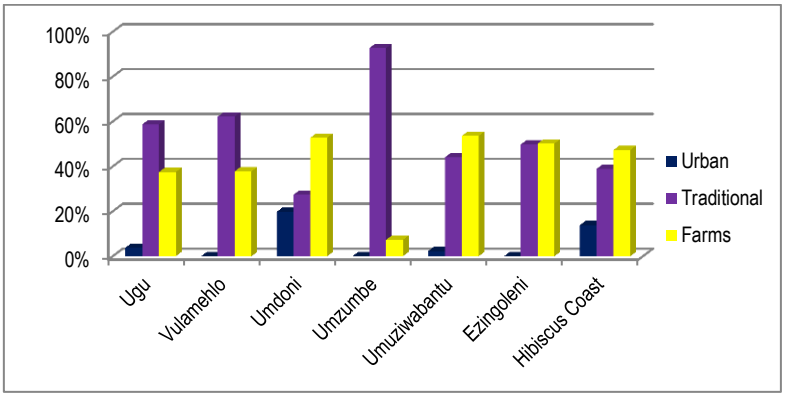

Figure 3.1.4.1: Settlement Type per Local Municipality
Source: Statics SA, Census 2011

The Ugu District Municipality SDF identifies four broad land uses which are namely roads, residential, agricultural and industrial as can be seen in Figure 3.1.4.2.

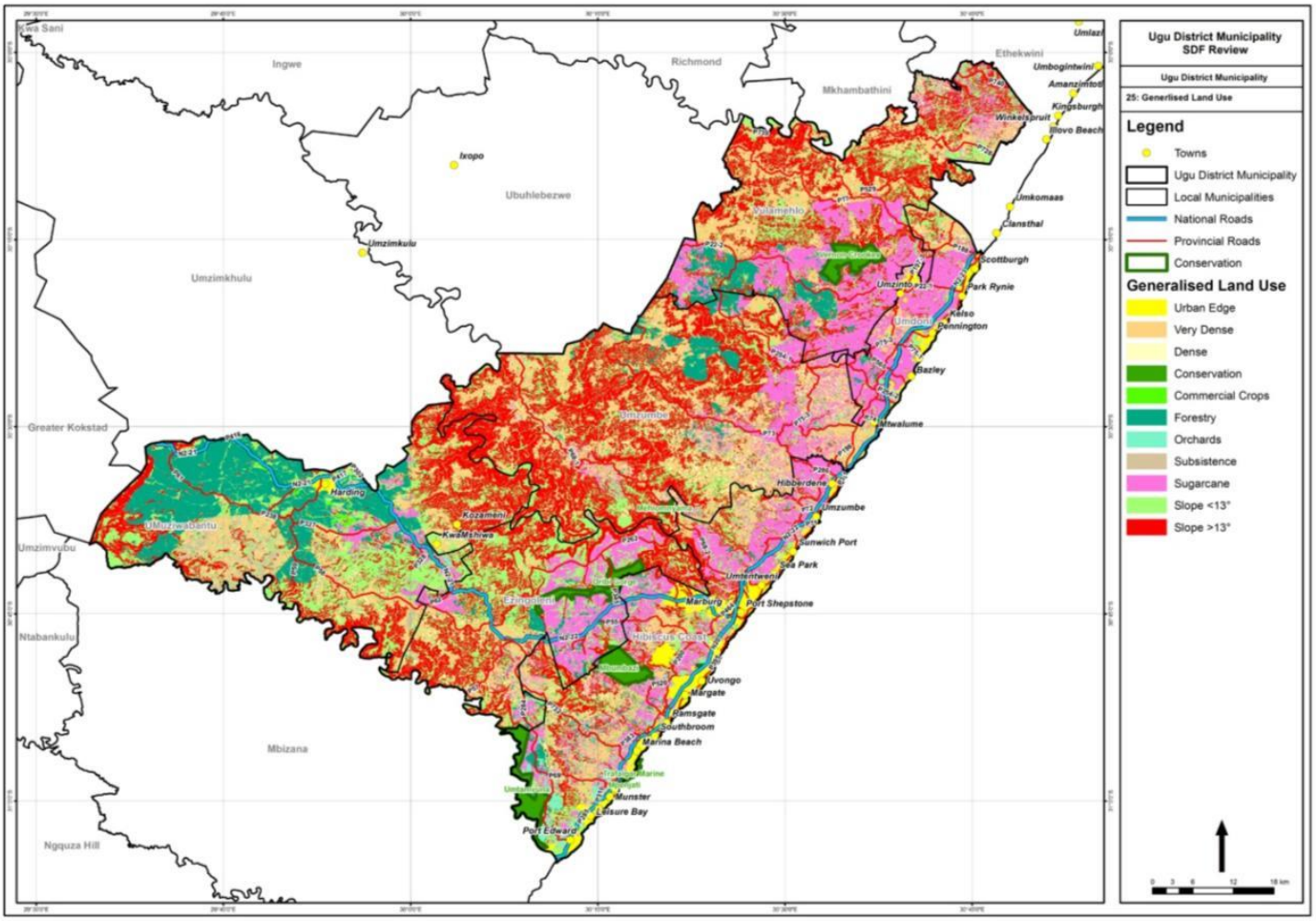

Figure 3.1.4.2: Ugu District Municipality Broad Land Uses
Source: Ugu DM GIS, 2015

3.1.4.1. Open Space System

An Open Space System comprising River Floodlines, High Priority Bio-Diversity Areas for retention (including Steep land), and Protected Nature Reserves occurs throughout the District. These comprise of existing demarcated areas, improved areas, and the new proposed Umzimkulu Game Reserve.

3.1.4.2. Roads

The major road system comprises of the existing National N2 and a series of E-W “Regional” and N-S “Regional” roads. Sections of the existing “Regional” roads that are currently gravel, will be “improved” by tarring when they connect demarcated Nodes.

3.1.4.3. Residential Areas

No major population growth is anticipated in rural areas, primarily those that occur within Traditional Authority areas; as urbanization is expected to be directed towards the larger coastal towns of the District and the major cities of the Province.

New “greenfilelds” and “infill” small pocket and accretion can be expected adjacent to the major coastal towns. For the most part, residential “Improvement” in the form of infrastructure provision and in-situ upgrading, will occur in relation to informal settlements, within and outside of TA areas, that are close to and adjacent to the coastal towns. The proposal is that the informal and formal settlement in the Traditional Areas will be linked to nearby Coastal Towns, consolidated and compacted to create integrated settlements.

3.1.4.4. Industry

Expansion of the existing industrial areas in Umdoni and Marburg will be encouraged; while a new large scale industrial area will be investigated for the Umzumbe area in order to facilitate development in this area.

3.1.4.5. Agricultural Land Use

The commercial agriculture is a broad, generalized category that accommodates intensive and extensive agricultural practices and forestry /plantation forms of Agriculture. The traditional settlement and agriculture practice on the other hand are areas comprising of low density settlement areas where limited commercial agricultural activities take place within the concept of small parcels of common land and the practice of mostly subsistence agriculture.

3.1.4.6. Land Ownership

The majority of the households in the Ugu District Municipality’s area of jurisdiction are owned and fully paid off by their occupants (56%), occupied rent free is 16% and rented also 16%. The households that are owned but not yet paid off are 9%. It is important to further interrogate the tenure / ownership type of the ownership as most of the ownership type is long term lease or PTO the title deed being limited only to the urban areas as the rural areas are under Ingonyama Land Trust and 79% of the population reside in the traditional areas. The table and chart below shows the land ownership of the district.

Table 3.1.5.1: Ugu District Municipality Tenure Status
Source: Stat SA, Census 2011

	Ugu	Umzumbe	Umuziwabantu	Ezinqoleni	Hibiscus Coast	Vulamehlo	Umdoni
Rented	**28937**	1901	2264	778	17855	679	5461
Owned but not yet paid off	**16663**	1639	2305	267	7560	2184	2710
Occupied rent-free	**28218**	5168	4580	756	9735	4423	3556
Owned and fully paid off	**100513**	25450	12002	9602	35021	8051	10386
Other	**5109**	1014	468	69	2005	798	756
Total	**179440**	**35171**	**21619**	**11472**	**72175**	**16135**	**22869**

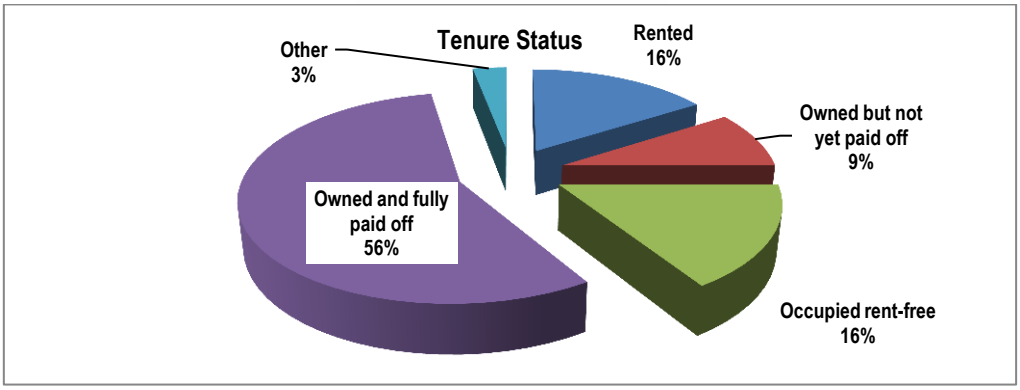

Figure 3.1.5.1: Ugu District Tenure Status
Source: Statics SA, Census 2011

3.1.4.7. Tenure Security

The lack of both tenure security and access to Ingonyama Trust Land has been identified as the primary blockage to economic and social development within the district. The existing spatial pattern, of a narrow strip of urban coastal development and a large, under-developed hinterland is perpetuated by the dual system of land ownership and management within the district. The potential identified in the hinterland for commercial agriculture, tourism, industry and commerce will not be realized unless the land can be unlocked for development. The unlocking of this land has implications for infrastructure provision within the region and the on-going development of human settlements. Resolving outstanding land claims is also regarded as essential to increasing the risk and investment appetite of farmers within the district. The spatial vision for the district involves the consolidation of emerging patterns of human settlement within rural economic nodes and corridors in order to unlock the potential of fertile tracts of land. Partnerships amongst the public, traditional authority, private and civil society sectors will be necessary in order to make this happen.

3.1.5. Land Reform

Land reform is an integral part of the transformation of the South African urban and rural landscape and limited success has been achieved to date across South Africa. Where it has been implemented it has been generally regarded as unsuccessful leaving communities and individuals destitute. The importance of implementing successful land reform initiatives can, however, not be doubted. Such initiatives should make a contribution to improving household food security and supporting economic development in the District.

As the focus of spatial planning is on the appropriate use of land, it is of specific importance that the impact of spatial planning proposals in the district on all facets of land reform be considered. The different facets of the land reform programme include:

- Land redistribution;
- Land restitution; and
- Land tenure.

The current status qou of the land reform programme in the Ugu District area of jurisdiction is captured in Figure 3.1.6.1 below.

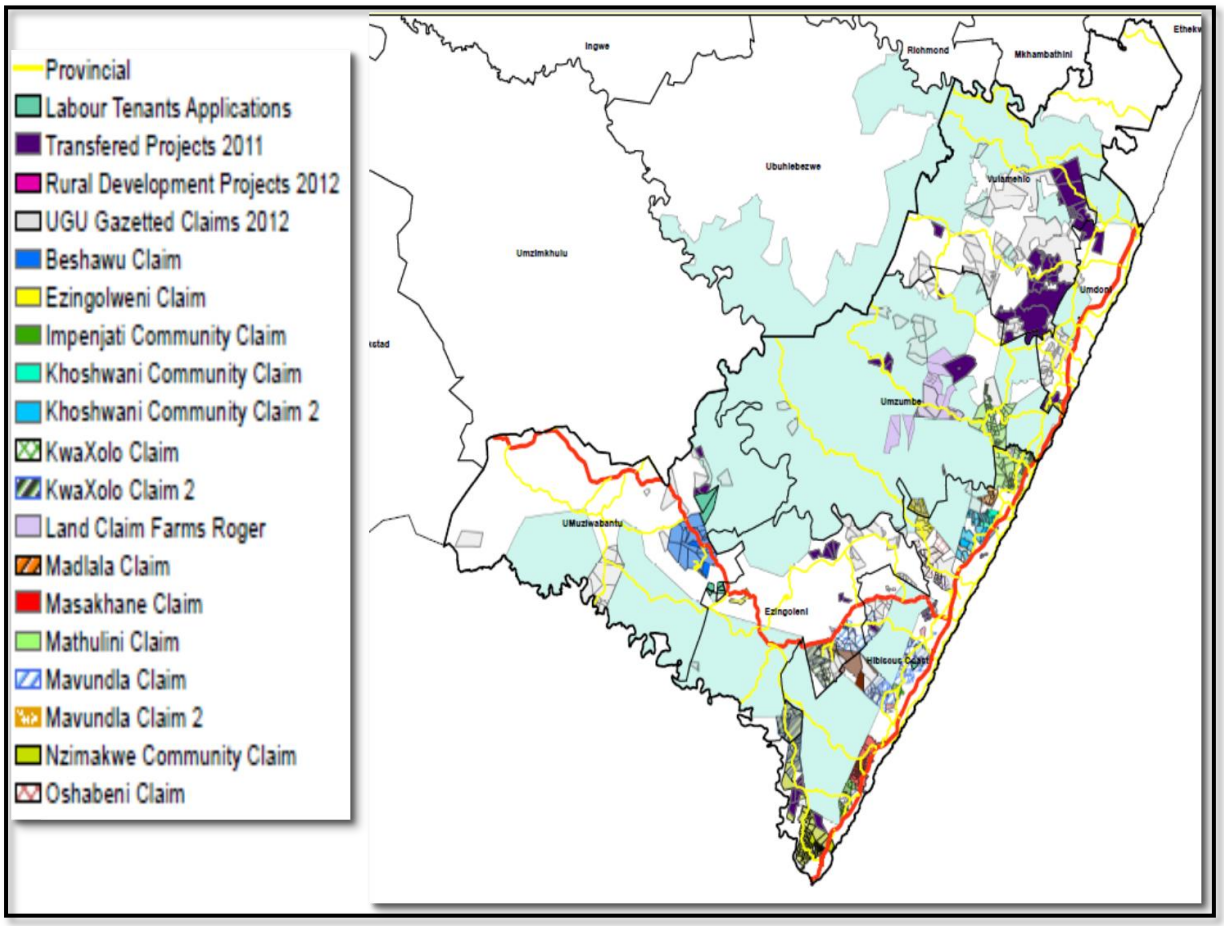

Figure 3.1.6.1: Ugu District Land Reform Status
Source: Ugu DM GIS, 2015

3.1.6. Land Potential

The **Ugu DGDS driver 4: Strategic Infrastructure** refers to the development of airports, harbours, road, rail, ICT, electricity and water infrastructure. These are all critical types of infrastructure that feed directly into Ugu's potential for economic growth and development. The Ugu DM has recently completed an Infrastructure Audit to assess the gap between existing capacity and future demand for infrastructure within the region as a whole. The Ugu SDF and Infrastructure Audit are key resources to assist in the prioritization of decisions regarding infrastructure investment interventions discussed in the Ugu DGDS. The strategic objectives identified as part of this driver are: **(4.1)** development of airports and harbours, **(4.2)** development of an integrated road and rail network to support passenger and cargo transport, **(4.3)** development of ICT infrastructure to support the knowledge economy, **(4.4)** strengthening of energy infrastructure capacity and efficiency, and **(4.5)** ensure effective water resource management and awareness.

Furthermore, the majority of development proposals presented in local economic development strategies require access to land. Examples of this include the development of industrial areas, the expansion of agricultural production, the establishment of new residential developments and more. From initial spatial and land use assessment it can be concluded that land in the Ugu District should be viewed as a scarce resource. Table 3.1.7.1 quantifies the current land use situation in the Ugu District, and specifically considers the availability of undeveloped land for development.

Table 3.1.7.1: Availability of Land for Development
Source: Ugu DGDS, 2013

Land Use Type	Total Hectares	% of Total
Urban Edge	25721	4.7%
Very Dense Rural Settlement	77864	14.3%
Dense Rural Settlement	50483	9.3%
Conservation	9084	1.7%
Forestry	46198	8.5%
Sugarcane	70177	12.9%
Commercial Crops	766	0.1%
Orchards	1961	0.4%
Subsistence Agriculture	5688	1.0%
Available Land for Development (Slopes < 13°)	125309	23.0%
Severely Restricted Land for Development (Slope > 13°)	132475	24.3%
Total	545726	100.0%

Although there appears to be substantial land available for development in the Ugu District, the majority of this land has a slope of greater than 13º which severely restricts the development potential. Approximately 30% of the land in the District can be classified as settled areas (including the urban edge and dense rural settlement). Sugar cane and forestry occupies 20% of the land with commercial crops and orchards occupying only 0.5% of the land.

The land available for development is generally located in small pockets and / or not well-located (i.e. located on river flood plains) and therefore not necessarily available for development. Low density rural and urban settlement areas also continue to expand and reduce the extent of land available for development.

Also to be considered is that sugar cane land, if used for alternative production or urban land uses, reduces the land for sugar cane and may impact on the longer term sustainability of the two sugar mills located in the District. These are major contributors to the economic output of the District.

3.1.6.1. Spatial Planning Perspective on Land Potential

With the above in mind it is important that the appropriateness of nodes currently reflected in spatial planning is assessed and the optimal location for the establishment of specifically rural nodes be determined.

The establishment of periodic service delivery points across the District, in locations that may in future be targeted for nodal development, should be considered. These periodic service delivery points must be clearly reflected on local municipality spatial development frameworks and should be the basis for the development of a periodic service delivery system. Through the establishment of such service delivery points the formation of informal and formal markets can also be promoted.

3.2. Environmental Management Analysis

Integrated Environmental Management (IEM) in the form of EIA compliance is a major milestone being achieved under the National Environmental Management Act (NEMA) across various sectors, both public and private. In collaboration with Department of Economic Development Tourism and Environmental Affairs and the local municipalities, the district had embarked on both statutory and non-statutory proactive integrated environmental planning through the development of Strategic Environmental Assessments, Environmental Management Framework, Integrated Waste Management Plan, Air Quality Management Plan, Air Quality Management by-laws, etc. Other pockets of excellence include intergovernmental and inter-sectoral forums and social responsibility projects. However law enforcement on formal mining activities remains a major area of concern.

Major gaps were identified when the five year IDP was developed in 2012 with respect to Coastal Management programme as required by the Integrated Coastal Management Act of 2009, Climate Change Adaptation and Mitigation Strategy, Invasive Alien Species Management Plan, Health and Hygiene Education Strategy. Some progress has been made as to date the Coastal Management Programme is in place and the municipality is currently developing Climate Change Vulnerability Strategy. The municipality will continue to prioritise the development of the remaining strategies and plans.

3.2.1. Physical Environment

This section covers the physical environment of the Ugu District Municipality area of jurisdiction looking at the topography and water resource, geology and soils, land cover, the coast, and biodiversity and conservation as summarised in Table 3.2.1.1.

Table 3.2.1.1: Ugu District Summary of Physical Environment
Source: Ugu District Environmental Services, 2015

Topography and Water Resources	Rises from sea level to inland plateau **Major rivers:** Umzumbe, Ifafa, Mthwalume, Mzumbe, Mtemtweni, Umzimkhulu, Umzimkhulwana, Mthamvuna, Mzimayi. **Bordering rivers:** Umkomaas and Umthamvuna **Altitude:** 20-100 above sea level **Slopes:** >40%
Biodiversity and Conservation	**Environmentally sensitive areas:** marine reserves, wilderness areas, monuments, conservation areas, nature reserves, wetlands, threatened species and their habitats, areas of high species diversity and sites of scenic value **Wetlands:** under severe, inappropriate development pressure, wetland habitats being replaced by developments **Vegetation:** various indigenous communities being overtaken by invasive alien plants **Protected areas:** Vernon Crookes, Mpenjati, Oribi Gorge, Umtamvuna and Mbumbazi Nature Reserves under EKZNW. There are others under private ownership

Geology and Soils	**Most likely parent geological material along the coast includes:** Dwyka Series occurring south of the Mkomazi River, inland from the Mtwalume River to the Ifafa River, south of the Mzimkulu River and north of the Mtentweni River. Slight-moderate erosion occurs **Alluvial deposits:** along estuaries and river flood plains, highly productive soils ranging from sandy through loamy to clay deposits, rich and humus, prone to extensive development pressure for cultivation activity **Sands:** overlaying the bluff beds are berea red sands representing the old dunes. – north of Sezela, south of Mpambanyoni and south of Mkomaas rivers. Sands colour generally range typically from white to gray, red or brown to yellow depending on the oxidation state of the iron containing minerals coating the quartz grains, typically poor for cultivation as they are subject to erosion if disturbed through inappropriate development. **Dolorite:** along the uMzumbe coast and in the vicinity of the Damba River. Soils usually non-structured clay formations with loam. High agricultural potential Sections of structured upland clays become water logged Extensive deposits of Gneiss (Granite) along the entire coast with cretaceous marine sediment deposits. Small quantities of gold, asbestos, limestone, kaolinite, bauxsite, graphite, copper and nickel occur on the coast
The Coast	**Length of strip:** 112km, covering Umdoni, Umzumbe and Hibiscus Coast local municipalities **Estuaries:** 36 estuaries **Development:** Coastal corridor is relatively well developed with hard and bulk infrastructure; light industries on the south focused around Port Shepstone, Marburg areas and Margate Airport as well as Scotttburgh-Park Rynie on the North. Intensive residential and holiday resorts developments **Risks and vulnerabilities:** highly vulnerable due to development and sea level rises. CVI suggests precautionary measures on the high to moderate risk areas
Land Cover	**According to CSIR's "Standard Land-cover Classification Scheme for Remote Sensing Applications":** Sugar cane and smallholdings penetrate the land in the Northern sub-region-limited to no more grassland left in the primary and secondary boundaries of the sub-region except on the Southern Sub-Region, west of Port Shepstone, Shelly Beach and Port Edward.

3.2.1.1. Key Hydrological features

Eight main river systems and numerous minor coastal catchments drain the Ugu region. The major systems with the largest carrying capacity are the Umkomazi, the Umzimkulu and the Umtamvuna which flow all year around. The Umtamvuna River is regarded as being in the best ecological state of all rivers within southern KwaZulu-Natal. Part of the Umtamvuna Estuary is administered by Ezemvelo KZN Wildlife (EKZNW). EKZNW administer the Umtamvuna Forest Reserve. The main systems and the size of their catchments are listed in table 3.2.1.1.1 and reflected in Figure 3.2.1.1.1.

Table 3.2.1.1.1: Ugu River and Catchment Areas
Source: Ugu Coastal Management Plan, 2008

River	Catchment Area Km2
Umkomazi	4388
Mpambanyoni	551
Umzinto	237
Ifafa	260
Umtwalume	552
Umzumbe	541
Umzimkulu	6666
Umtamvuna	4986
Coastal Catchments	11009 (made up of 5 catchments all less than 330 km2)

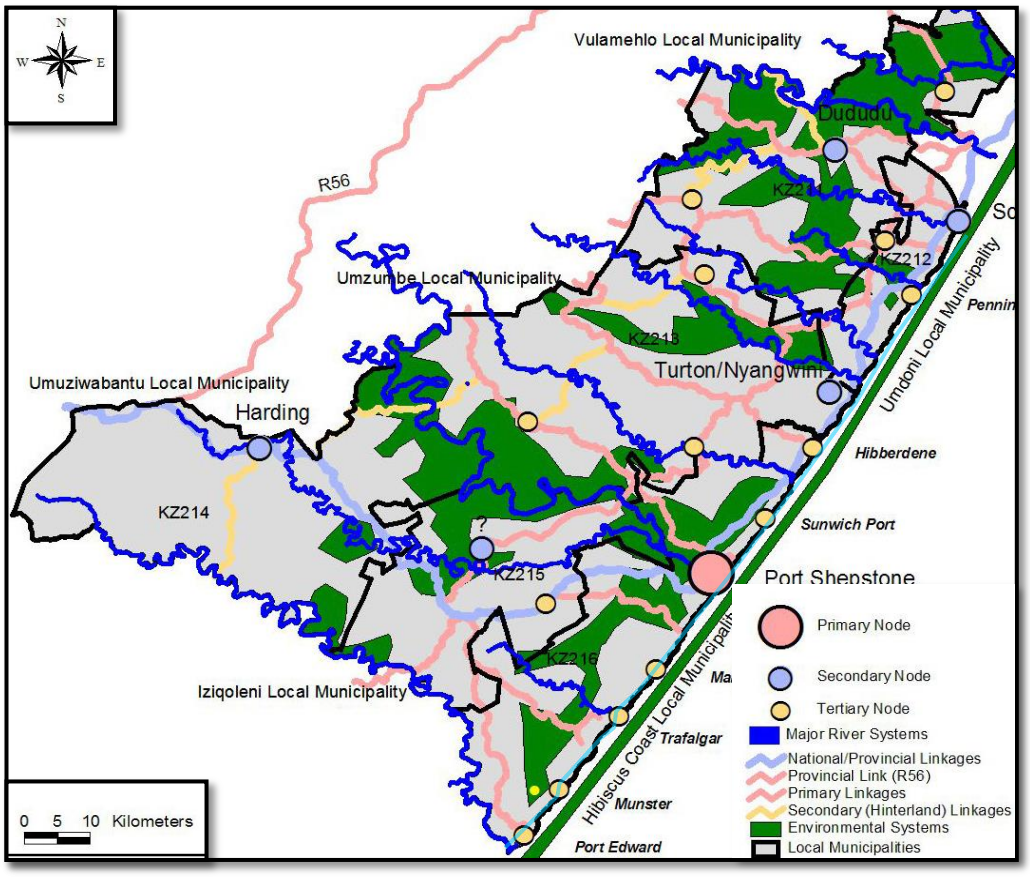

Figure 3.2.1.1.1: Ugu District River and Catchment Areas
Source: Ugu District SDF, 2012

The Ugu coast is serviced by 42 estuaries, 37 of which are classed as barrier lagoons and thus cannot be classed as true estuaries since they are closed to the sea for part of the year. Mangroves are present in some estuaries and several wide floodplains support reedbeds and swamp forest.

Of the five (5) true estuaries, only the Umzimkulu, a delta-top estuary and the Umtamvuna, a unique drowned river valley (ria), have a near constant open mouth condition. These two estuaries offer permanent nursery habitat to marine fish that are estuarine dependent. The Uvongo is scenically and ecologically unique as it boasts an estuarine plunge pool and natural waterfall. The Umzumbe is a non-tidal river mouth estuary and the Mpambanyoni is a delta-top estuary.

Intense inappropriate development, industrial and storm water pollution and degeneration stemming from river catchment activities threaten the ecological role and function of estuaries.

An analysis reveals that 45% of rivers monitored exhibit poor to moderate levels of water quality. This is in terms of their suitability for human contact (E. coli). The Uvongo and Mbango Rivers are classified as exhibiting poor-water quality and to be contaminated by forms of industrial/ textile manufacturing chemical pollution (CSIR, DWAF, Local Development Plans). The Umzimkulu is also reported to show high levels of heavy metal pollution (zinc, aluminium, copper, lead, nickel, chromium and mercury).

There are only four, out of the 42 estuaries in the region with their flood plains in good condition and over 50 % of the estuaries are in a moderate to poor state with regard to invasive vegetation.

3.2.1.2. Protected areas

The Core Environmental areas for consideration and identification of the SDF indicates that quite a few “new” areas (compared to the current SDFs) will have to be incorporated into the Reviewed SDF. On the other hand a number of existing areas, especially in the Vulamehlo area will be removed or reduced in extent. Most of these areas will be combined with adjacent River/Floodline areas or steep areas to create composite and contiguous Environmental Conservation areas on the SDF

Environmental Conservation areas are a composite of all those areas where development, of all types, will be constrained and/or constricted as a consequence of Steep land which is difficult to service or can lead to soil erosion, river floodlines, where development needs to be restricted riverine and estuary systems;

Ecologically determined land parcels set up to protect fragile, unique, and rare ecosystems as identified by Ezemvelo. These will be identified as :

- Core Environmental Areas, which are those areas that absolutely must be protected.
- Intermediate Environmental Areas that are areas which will need detailed assessment and trade off for developmental purposes, and could be considered to be co-incident with extensive types of agriculture.
- Nature Reserves, which are the formally identified areas under some form of public management and protection.

Several forms of Environmental Areas with restrictions on development are identified,

- Formal Nature Reserves – both existing and proposed (Figure 3.2.1.2.1)
- Conservation and Environmental Management areas that include Rivers, floodplains, estuaries, steep slopes and protected/high value eco-systems (Figure 3.2.1.2.2)

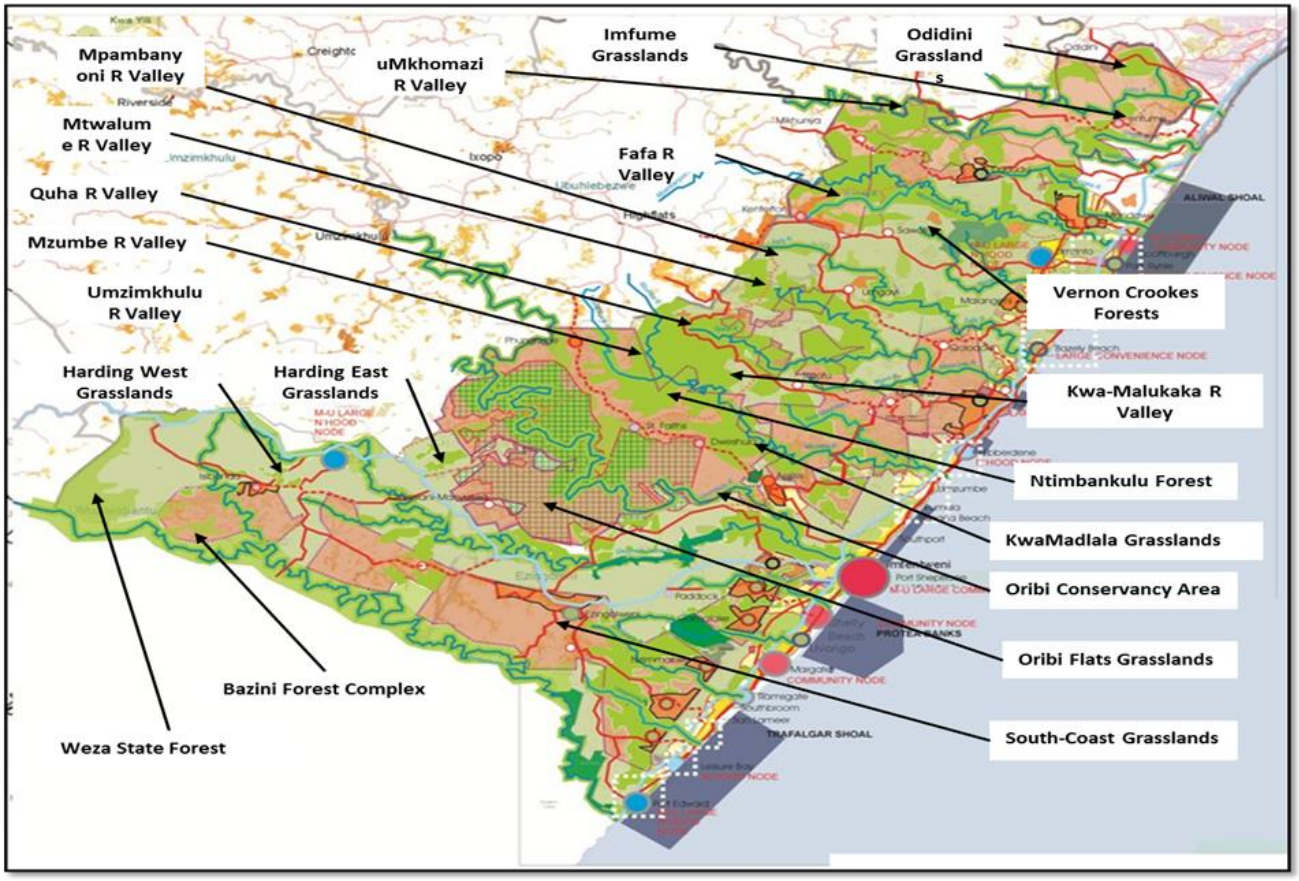

Figure 3.2.1.2.1: Ugu District Protected Areas (Nature Reserves)
Source: Ugu District SDF, 2012

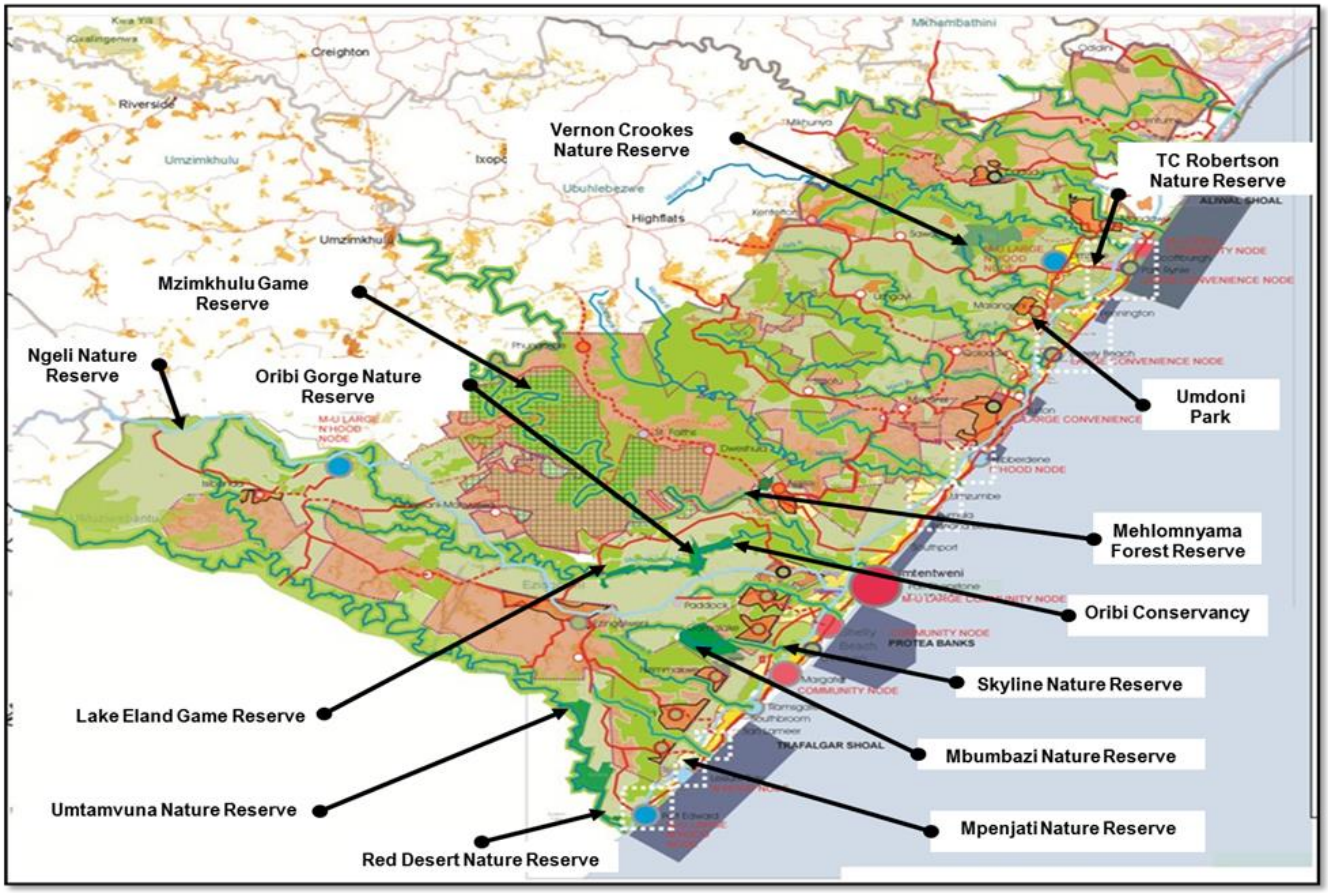

Figure 3.2.1.2.2: Ugu District Protected Areas (Conservation Areas)
Source: Ugu District SDF, 2012

3.2.2. Climate Change

There are numerous red flags in the Ugu district in terms of environmental management and the development of appropriate responses to climate change. For example, the Umdoni and Umuziwabantu local communities have recently undertaken Strategic Environmental Assessments (SEAs) that have raised serious concerns such as:

- Over exploitation of resources;
- Loss of wetlands, coastal forests, bushlands and grasslands, and associated biodiversity;
- Loss of ecosystem services – flooding, erosion and infrastructure damage;
- Alien plant encroachment;
- Poor state of rivers and estuaries;
- Soil erosion, loss of soil fertility in sugar lands, over grazing and uncontrolled land use in traditional areas;
- Illegal sand mining and quarrying;
- Loss of ecological linkages – fragmentation;
- Uncontrolled urban and rural sprawl;
- Siltation and irrigation compromising water supply; and
- Little evidence of climate change adaptation.

A key warning of these SEAs is that levels of vulnerability within these local municipalities have increased with the compromising of many environmental systems. Both the SEAs argue that the strategic documents of these municipalities, such as their SDFs, LUMS and IDPs are promoting unsustainable development and that poor upstream and institutional management is contributing to environmental degradation.

3.2.2.1. Ugu DGDS Response

It is strongly argued that sustainability must underpin the entire approach to development within the Ugu region. There is already an unacceptable level of environmental destruction and disregard. Growth and development cannot simply be measured in terms of wealth creation, but must take into account the impact on the quality of life of all citizens and on the planet. There are several challenges in the district with regard to environment sustainability – most notably the sheer lack of clear regulations, standards, supporting policy, incentives and appropriate research and development existing in the district currently. Further challenges relate to accessing financing capital and institutional infrastructural support. All industries should be assessing their current activities in terms of green principles and also investigating new opportunities that are presented through adopting a green approach. There is a need to have a "greening" strategy for the district that addresses both urban and rural development challenges. In particular municipalities need to develop green strategies for service delivery and support sustainable livelihoods that address the needs of different human settlement typologies. With this in mind, three strategic objectives have been identified which are **(1)** to advance alternative energy generation capacity, **(2)** to manage the pressures of biodiversity and environmental quality, and **(3)** to ensure efficient environmental monitoring, regulation and disaster management.

3.2.3. Environmental Health Services

Environmental Health summary of priorities are as follows:

- Health education is aimed to nurture behavioural change and to provide capacity to the community to identify health risks.
- To enable uniform application of the department requirements throughout the district and law enforcement thereof, Public Health By-laws are in the process of development.
- Ensuring compliance to hygiene and health standards amongst the general community, business sector and housing projects. This includes food safety, water and air monitoring, health surveillance of premises, food, vector and communicable disease control.
- Controlling, restricting or prohibiting the business of an undertaker, mortuaries and other places or facilities for the storage of dead bodies.
- Proactive interventions in the aspect of human settlements through the scrutiny of building plans to ensure compliance with health and certain standards in order to prevent health risks that may arise as a result of occupation thereof.

3.2.3.1. WHO 5 Keys to Safer Food

All municipal Environmental Health Practitioners (EHP's) are applying the 5 Keys to Safer Food Standards which have been developed by the World Health Organization. This has been and is still being implemented through workshops and on site education at food premises. Accordingly this will ensure safer, healthier and more hygienic food for the communities and consumers. This nature of food control is of international standard and same will be applied throughout the district amongst the food handlers.

3.2.3.2. Certificates of Acceptability

Steps are taken to ensure that the level of standards that were improved upon should continue to be maintained by vigilant monitoring and evaluation of all food handling premises.

All food handling premises are monitored and once compliant are issued with a Certificate of Acceptability which can be withdrawn should a premise be no longer compliant. The certification of food premises for catering and of food handling for special events is also done to ensure that the standards of food handling minimise the dangers of food spoilage and of cross-contamination in order to reduce the chance of food poisoning.

EHPs will continue to sensitize all food handlers especially caterers and informal food vendors on the food safety protocol so as to prevent the outbreak of food borne diseases and to guarantee a hygienically protected and safe environment for food handling.

Many of the food handling businesses in the district are aligning themselves with international standards viz, the Hazard Analysis Critical Control points System (HACCP).

This is encompassed under the Regulations defining the Scope of Practice of Environmental Health Practitioners. EHPs are trained and updated on the HACCP standards in order to be able to assist the businesses to comply with the control standards.

3.2.3.3. Environmental Health Education

Health education is a very critical aspect of environmental health, as some of the health issues are being taken for granted by communities. This includes unhygienic food preparations, food contamination as a result of unhygienic surroundings and other factors such as non-compliance with basic standards, etc.

The lack of education is a compounding factor to the high levels of ignorance of health related issues amongst disadvantaged populations. Health education, being a critical aspect in environmental health, is prioritized in order for timely and accurate information to be disseminated to these disadvantaged communities. With more emphasis on appropriate water and sanitation practices and proper prevention techniques regarding food contamination, unhygienic surroundings can be eliminated.

Health education therefore creates awareness amongst rural and urban communities as people would be able to identify existing health risks as well as risky behaviors in their surroundings. Health Education also addresses other natural aspects of health risks in relation to:

- Water resources and general environmental pollution;
- Nurture proper behaviour and also provide skills to identify health risks;
- Continuous education at schools, communities and businesses to sensitize and ensure prevention before cure;
- Control and containment of communicable diseases; and
- Due to the increase in positive Rabies cases within KZN, a Rabies Action Group (RAG) has been constituted in order to promote the vaccination of all dogs annually, and to promote awareness of the fatal disease. Community Health Workers have been trained and will be assisting in all areas within the district. The Environmental Health staff assists the Dept. of Veterinary Services with the Rabies vaccination campaigns.

3.2.3.4. Health Care Risk Waste

Health Care Waste (HCW) is a combination of Health Care General Waste (similar to domestic waste) and Health Care Risk Waste, which is the hazardous component of HCW.

Historically, incineration had been a method of treatment and destruction of all heath care risk waste. The incineration of health care risk waste was phased out in 2003 by the Provincial Department of Health in favour of alternative technology to incineration.

The Health Care Risk Waste Policy focuses on the management of health care risk waste and it is critically important to ensure that health care general waste is also well managed. The development of

this policy is aimed primarily at improving the standard of health care risk waste management and disposal at all the health care facilities.

To this end Environmental Health has a critical role to play to ensure compliance in terms of the management of HCRW at health facilities, tattooists, state veterinary services and medical practitioners' surgeries etc.

District Health Care Risk Waste Management is greatly empowered with E.H.Ps now employed by each Provincial Hospital in the District. This will greatly assist in managing the health care risk waste related issues in the district.

3.2.3.5. Basic service delivery and integration with other stakeholders

Integration of this with Environmental Health is very critical as there are some elements of health that cannot be addressed unless the communities have the basic and essential services at their disposal. These relate to waste management facilities, housing, safe water supplies and appropriate sanitation facilities amongst others. It is very critical for the projects to be integrated with other services such as water, sanitation, environmental impact assessments, health facilities, waste management services and compliance with National Building Regulations in order to ensure that all the requirements are met. Compliance with these will help prevent the repetitive cycle of poverty and major environmental and health hazards as a result of poor and disintegrated planning.

3.2.4. Spatial and Environment Trends Analysis

This section looks at the spatial and environmental trend analysis of the Ugu District Municipality area of jurisdiction as summarised in Table 3.2.4.1.

Table 3.2.4.1: Ugu District Environment Trend & Analysis
Source: Ugu District Environmental Services, 2012

Issue	Challenges	Current Interventions	Recommended Interventions
Air pollution		Air pollution monitoring (SO_2, NO_x, CO_2 and PM_{10})	
Air pollution and poverty	Lack of awareness in terms of pollution impact on the environment, shortage of electricity supply leading to high usage of domestic fuel, poor indoor air quality	Indoor and Ambient passive sampling in Harding, Port Shepstone and Park Rynie	-Continuous passive sampling, -Environmental Education and Awareness Campaigns in communities. -Projects to reduce air quality related environmental and health risks. -Pilot projects for poor households [e.g. Basa njengoMagogo and other innovative projects
Regulatory instruments for air quality management	Lack of enforcement and compliance of regulatory strategies for open burning, especially veld fires and sugarcane	Regulatory Tools in place: Atmospheric Emissions Licensing (AEL) -Air Quality Management plan	-Compliance by facilities eligible for licencing Law enforcement for open burning Multi-stakeholder forum (Air

Issue	Challenges	Current Interventions	Recommended Interventions
	Human resource capacity for air quality management	-Air Quality Management by-laws	Quality Management forum)
Alien Invasive Plants Management			
Biodiversity (Invasive alien plants and emerging weeds as well as problem animal management – bushpigs)	Invasion of ecosystems by alien plants. This is a threat to food security and environment at large Invasion of communities and destruction of their crop produce by the bushigs	-Community programmes viz. greening initiatives to enhance green spaces, promoting the "planting of the indigenous to replace or counteract the invasive alien which also contribute to mitigation of climate change effects. -Pilot project on bushpig management	Development of IAS Management Plan as well problem animal management strategy.
Public awareness and stakeholder engagement	Extent of knowledge and awareness on invasive lien species	Education and awareness campaigns – schools and communities EKZNW's stewardship programme Invasive Alien Species Forum for stakeholder engagement Clearing projects by conservancies	Support for and recognition of the work done by the South Coast conservancies Engagement of communities, especially private landowners
Invasive alien plants projects	Departments and Stakeholders work in silos in the implementation and eradication of Invasive Alien Species (IAS) Integrated and localised data for decision-making	Partnership with and support to local conservancies Clearing projects by government, Ugu, departments, EKZNW and conservancies	Sourcing of funds through EPWP and relevant Sector department programme for the municipality to stimulate green economy through creation of green jobs and beneficiations Support and funds directed to local conservancies and environmental NGOs as they also undertake clearing projects
Disaster management	Seasonal Fire outbreaks within Ugu	Disaster management plan and initiatives Community outreach through volunteers	Veld fire management programmes to focus on invasive alien plants as well
Environmental Impact Management			
Environmental compliance by infrastructure projects	Aging infrastructure	Whistle blowers reporting Education on Environmental legislations Implementation of Environmental Management Framework	A coordinated response measure and full compliance of all projects to Environmental legislations Implementation of Generic environmental management plan
Coastal Management			
Coastal development	Sea level rises associated with climate change effects resulting to coastal disasters. Poor planning of	Draft Coastal Vulnerability Index (CVI) Implementation of Generic Environmental Management Plan to	Fast-track the drawing up the setback line for both urban and rural coastal areas Minimal development along the coast

Issue	Challenges	Current Interventions	Recommended Interventions
	previous development along the coast Coastline vulnerable to adverse conditions caused by climate change	guide future development Application for Environmental Impact Assessment	
Institutional requirements	Limited budget for the development of Coastal Management Plans, Estuarine Management Plans	Estuarine management plan being developed for estuaries falling within protected areas Coastal management committees in place and functional	Funding to be made available in order to enable the municipality to fulfil this statutory requirement
Research and development	No focus on research regarding coastal processes and adaptation ability of the municipality in the face of climate change and its effects on the coast	Current CSIR's study on the readiness of coastal local government to adapt and mitigate climate change effects on the coast	Local government to establish research and partner with research institutions (UKZN, CISR, etc)
Poverty alleviation	Limited work opportunities Lack of support to emerging entrepreneurs	Short-term EPWP projects viz. estuaries cleaning and management (Ugu), Working for the Coast Project (DEA), Subsistence Fisheries Data Capture project (EKZNW)	Successive sustainability of projects Empowerment of emerging entrepreneurs
Climate Change			
Climate change	Direct and indirect negative effects of climate change, viz. natural disasters, Effects of climate change on communities and sectors, some that facilitate economic growth e.g. agriculture, health, rural communities, environment and tourism	**Internally:** environmental policy that promotes Green offices and green procurement **Local level:** Education and awareness in Climate change adaptation Small scale mitigation interventions like greening initiatives, viz. • planting of indigenous trees, • enhancement of green spaces and • establishment of green corridors that act as carbon sinks, **Provincial level:** Provincial risk assessment study that focuses on risks, vulnerabilities, opportunities or possible areas of intervention per sector.	An organisation that is conscious of sustainable environment. Allocation of funds to long-term initiatives like renewable energies, cleaner production technologies, more studies in relation to human health adaptation and agricultural practices. Science based polices and strategies that will influence clear roles and responsibilities government and private sector Realisation of the Green Fund in order to address climate change effects and invest in Green Economy Partnership with surrounding Municipalities for the development of Climate Change Response Strategy.

Issue	Challenges	Current Interventions	Recommended Interventions
		National Level: Policy approach - White Paper on Climate Change Capacity building through engagement with other stakeholders and sectors	
Waste Management			
Waste collection services, waste minimisation	Limited waste management and provision of waste collection services in local municipalities No designation of waste officials in some local municipalities	District integrated waste management plan Support local municipalities - Recycling programmes - Waste Management Education and Awareness - Waste Recycling Schools Projects - DEA implementation of Youth Jobs in Waste in all Local Municipalities	Extension of refuse removal to un serviced areas in all municipalities and even in rural areas Implementation of Basic Refuse Removal to all local municipal Development of green jobs-recycling, alternative energies Focus on waste minimization initiatives, starting with education and infrastructure Adoption of District Integrated Waste Managent Plan
Environmental Strategic Planning			
Strategic planning and environmental management tools	Limited development of strategic environmental management tools Human resource capacity in LMs – no environmental offices	Ugu Integrated Waste Management plan, Umuziwabantu and Umdoni Strategic Environmental Assessments, District Environmental Management Framework, Biodiversity Regional Plan, and Mpenjathi Estuarine Management Plan, Ugu Environmental Management Policy Air Quality Management Plan Ugu District staff is supporting LMs	To adopt all SEA in 2012 and EMF Biodiversity plan in 2013. Implementation of all current and upcoming plans Local municipalities to make a bold decision to establish environmental management offices
Education, Awareness and Training			
Education in schools	High schools not very active in environmental education which should also influence their career focus Declining finances for environmental education in municipalities	Schools programmes: • Adopt a wetland • Eco-Schools • Environmental calendar days • Career guidance	Intensify and sustain all programmes Career guidance especially focusing on the scarce skills and specialist fields of environmental management Curriculum review by the Dept of Basic Education and FETs to keep up with current environmental issues
Education in communities	Budget Prioritisation for Environmental	Community information sessions	Local community conferencing

Issue	Challenges	Current Interventions	Recommended Interventions
	Education Programmes	Public campaigns Celebration of environmental calendar days	
Partnerships as per Local Agenda 21		Ugu Environmental Education and Awareness Forum formed through partnership with private sector, public entities, sector departments and other interested parties	
Internal education	Limited focus on capacitating internal staff Waste minimisation project currently not sustainable	Green offices through: • Paper, plastic and can recycling • Education and awareness with cleaning services	Policy implementation Intensification of education with staff, political leadership, contractors, business partners, customers and visitors.
Problem animal management			
Invasive bushpigs	Invasion of communities by wild pigs resulting in destruction of agricultural produce	Stakeholder engagement with EKZNW, local municipalities, traditional structures	Funding for EPWP programme to engage communities to manage / capture problem animals Policy and strategy approach Ownership of problem animal mandate
	Sector departments as well as local governments do not accept the responsibility of problem animals	Ugu municipality is piloting a project on problem animal reduction at Umzumbe	

3.2.1. Spatial & Environmental Analysis Emerging Key Issues

From the analysis from the above sections the emerging key issues were identified for the Spatial and Analysis section.

- There are increasing inappropriate, illegal and uncontrolled developments taking place in certain land parcels in the district. There is a need to enforce development controls and implantation of planning frameworks accordingly.
- Climate change is a threat to biodiversity, health, economy, food security and disasters. However, it also offers growth of the green economy.
- Sand mining is a challenge in the district due to non compliance to the permits and lack of monitoring and enforcement. In some areas of the district it has led to fatalities. Lack of cooperation between Mineral Resources Department and other departments regarding environmental and socio-economic impacts is adding to the sand mining challenge.
- National departments not taking full responsibility for their properties thereby exposing them to invasion by alien plants are a threat to the environment, water supply and road safety

- Water resources - quality and quantity (pollution, invasion of water bodies by water intensive alien plants)

- The lack of suitable land for the disposal of the dead (burial), and current challenge of cemeteries running out of space at an alarming rate can lead to the burial of bodies in non-designated areas due to unavailability of registered burial plots or cemeteries-may also pollute water sources
- Illegal solid waste disposal, coupled with airspace in landfill sites fast reaching capacity and there have been illegal landfill sites identified in some local municipalities which needs urgent attention.
- Policy environment is improving (by-laws, licensing of listed activities that pose a serious threat to the environment, human health and the economy) what remains is ensuring consistency in implementation.
- Pollution threatening the coastal environment thereby compromising beach tourism which in turn threatens the Blue flag beach statuses which are an international accreditation boosting tourist confidence. This may have adverse consequences as tourism is our main economic contributor.
- The disposal of dead animals or the lack thereof, ensuring responsibility towards them by relevant persons remains a challenge.
- The municipality faces limitation of microbiological and chemical analysis of foods due to the lack of funds.
- There is a need for a district wide awareness with regards to environmental health.

3.3. Disaster Management

In terms of the Disaster Risk Management Act 2002, (Act No.57 of 2002), Section 43-50 outlines the establishment and functions of the Disaster Management Centre in order to ensure an integrated and co-ordinated approach to Disaster Risk Management within the district. Ugu District Municipality Disaster Management Risk Centre was established in 2005, is fully functional. The Centre Control Room Number (039 682 2414), the Ugu Call Centre Toll Free No: 0800 092 837.

The call centre is shared between the Disaster Management & Fire Services and Water Services for enquiries and Incident reporting.

3.3.1. Municipal Institutional Capacity

The responsibility for reducing disaster risk, preparing for disasters, and responding to disasters is shared among all departments and employees of local municipalities within the Ugu District Municipality, all departments and employees of the Ugu District Municipality, all provincial and national organs of state operating within the municipality, all sectors of society within the municipality and, perhaps most importantly, all the residents of the municipality.

The Disaster Management structure for the Ugu District Municipality is meant to deal with both pro-active and reactive disaster management issues and encompasses more than the department which is responsible for the function. It is important to note that disaster management has a different structure which needs to operate in. Disaster Management in the Ugu District interfaces the local municipal and provincial spheres through the various forums. This communication is coupled with

decision making ability and ultimate responsibility and accountability present on three different and all very important levels which are:

- Strategic level;
- Tactical Level; and
- Operational Level.

3.3.2. Risk Assessment

Risk Assessments were conducted during the sector plan review process and risk reduction strategies were developed and in addition, the risks mapping exercise being completed. The District is seating with a ward based risk profile which was conducted per ward within the 84 wards throughout the District. Each Local Municipality has its own Ward Based Risk Profile which is incorporated in their Local Disaster Management Plans. Table 3.3.2.1 below provides the details of the risk prioritised as per sector programme.

Table 3.3.2.1: Municipal Risk Profile 2015/2016 Financial Year
Source: Ugu District Disaster Management, 2016

Umdoni	Vulamehlo	Ezinqoleni	Hibiscus coast	Umuziwabantu	Umzumbe
Drought	Drought	Drought	Drought	Drought	Drought
Structural Fires	Structural Fires	Structural Fires	Structural Fires	Structural Fires	Structural Fires
Informal Settlement Fires	Air Pollution	Informal Settlement Fire	Informal Settlement Fires	Informal Settlement Fires	Air Pollution
Veld Fires	Veld Fires	Veld Fires	Veld Fires	Veld Fires	Veld fires
Floods	Thunderstorms		Floods	Floods	Floods
Water Pollution	Water Pollution	Hail Storms	Hail Storms	Hail Storms	Water Pollution
Hazmat by road	Hazmat by road	Hazmat by road	Hazmat by road	Hazmat by road	Hazmat by road
Strong Winds	Strong Winds	Strong Winds	Strong Winds	Strong Winds	Strong Winds
Lightning	Lightning	Lightning	Lightning	Lightning	Lightning
Rabies	Wild Wigs	Wild pigs	Rabies	Rabies	Wild pigs
Storm Surge		Air Pollution	Storm Surge	Water Pollution	Storm surge
Air Pollution		Water Pollution			Drowning's

3.3.2.1. District Vulnerability to Disaster Risk 2015/16 Information

During the 2015/2016 financial year, the District experienced a high level of fire related incidents followed by heavy rain and lightning. Most of the fire incidents reported were structural fires within informal settlements. The incidents that were reported occurred in all six local municipalities namely: - Ezinqoleni, Hibiscus Coast, Umdoni, Umuziwabantu, Umzumbe and Vulamehlo. The summary of the Ugu District Municipality vulnerability to disaster risk in the 2014/ 2015 financial year are summarised in table 3.2 below.

Table 3.3.2.1.1: Ugu District Vulnerability to Disaster Incidents Reported in 2015 /2016
Source: Annual Report: Distribution of Incidents, 2016

No.	Type of Incident	2014-2015	2015-2016
1.	Structural Fire	75%	67%
2.	Lightning	3%	2%
3.	Heavy Rains	8%	10%
4.	Strong Winds	8%	19%
5.	Severethunderstorms	1%	2%
6	Hail Storm	4%	0%
7.	Veld Fire	1%	0%

Table 3.3.2.1.2: Ugu District High Risk Disaster Areas Summary 2015 /2016
Source: Ugu District Disaster Management Sector Plan, 2015/ 16

Municipality	High Risks
Ezinqoleni	Fire, Drought and Water pollution
Umdoni	Drought, and Floods
Hibiscus Coast	Fire, Floods, Lightning and Drought
Umuziwabantu	Fire, Flood, Drought and Lightning
Vulamehlo	Fire, Floods, Lightning and Drought
Umzumbe	Fire, Floods, Lightning and Drought

The District and Local Municipalities have plans and strategies in place to mitigate the risks that have been identified above and to ensure that there are no fatalities. The immediate actions taken by the municipalities are:

- Training and education
- Public Awareness/ road shows
- Emergency relief programs
- Councillors, Amakhosi and officials were trained on Disaster Risk Management

3.3.3. Disaster Management Education, Training and Public Awareness

The Disaster Management Act states that the following concepts should form the basis of disaster management awareness and training:

- A culture of risk avoidance.
- Promotion of education and training.
- Promotion of research into all aspects of disaster risk management.