

Environmental Analysis

7.1 COMMUNITY NEEDS ASSESSMENT

The following main community needs have been identified for the environmental thematic area and can be prioritised as follows:

- Public Parks
- Conservation
- Pollution (Air/Water/Soil)
- Littering
- Rivers and Bush Clearing
- Disaster issues
- Community Awareness

7.2 OVERVIEW

7.2.1 NATURAL ENVIRONMENT

The institutional locus of responsibility for environmental protection and management of the natural environment is the Environmental Services and Parks Department, although the function of environmental services and parks also involves, inter alia, the following Municipal departments: Cleansing Services; Environmental Services; Amenities (including Marine Services); Health; Scientific Services; Engineering Services; Protection Services; and Civil Protection. The overall responsibility of the Buffalo City Environmental Services and Parks Department is vegetation control, conservation of nature reserves and public open spaces.

The BCM has an environment that is primarily pristine and wilderness in nature (e.g. coastal forests, estuaries) and as such is of great tourism potential.

The undulating topography has contributed to the problem of remote areas being difficult and costly to develop, manage and maintain. Unco-ordinated development and inappropriate land use planning has resulted in environmental degradation in the Buffalo City area. Of particular concern are issues such as deforestation,

expansion of informal settlements, erosion, dune denudation, pollution of watercourses, increase in alien invasive vegetation, illegal dumping and inappropriate use of developed parks.

The clearing of natural vegetation has been associated with the proliferation of informal settlements, particularly over the last decade, as people have been drawn to urban areas in the hope of finding employment. Deforestation and the encroachment of natural areas are occurring throughout Buffalo City. The collection of firewood and the removal of trees for use in dwelling construction have resulted in the rapid reduction in the size of natural vegetation areas. Illegal encroachment of settlements into municipal public open space is also taking place in formal areas like Beacon Bay.

Associated with the uncontrolled clearing of natural areas is the increase in erosion. Erosion is particularly prevalent within the peri-urban and rural areas of Buffalo City.

Dune denudation has recently become a problem as uncontrolled development expands into sensitive coastal dune areas. The erosion of the bases of coastal dunes has also been associated with human activities and is particularly prevalent at Gonubie River Mouth and Nahoon Reef.

Watercourses in Buffalo City are badly polluted, particularly the Buffalo River. This is linked to the uncontrolled release of industrial effluents, pesticides, herbicides and a lack of access to sewerage facilities in rural and informal settlements.

Environmental disturbance has resulted in the recent expansion of alien invasive vegetation and noxious weeds. This is particularly evident along roads, paths and recently cleared habitats.

Illegal dumping is prevalent throughout Buffalo City, and is linked to the inaccessibility of formal dumping areas, lack of awareness and education, high costs associated with formal dumping and a lack of civic pride.

Due to the lack of knowledge of communities regarding permaculture, urban and rural agriculture and composting, these activities are not performed to a significant extent by local communities. Another major contributing factor is the lack of availability of land to establish or develop new rural and urban agricultural facilities. There is a general lack of community gardens within Buffalo City, and in particular within informal settlements. The development of community gardens could potentially reduce poverty, assist in alleviating malnutrition and AIDS-related illnesses and create employment opportunities.

Outdated by-laws, policies and procedures, as well as the ineffective policing thereof are resulting in environmental degradation. The lack of a relevant data-base is hampering the effective management of land. Outdated machinery,

vehicles and equipment is a major contributing factor in limiting the development of an effective and safe environmental service to communities in Buffalo City.

Refer to Map B5: Environmental Constraints; Current Situation (Summary of Environmental Aspects)

7.2.2 COASTAL AND MARINE

Buffalo City has 68 km of coastline, which includes 10 estuaries, conservancies, National Heritage Sites, rocky shores and 14 sandy beaches.

The entire coastline is subject to consumptive use, such as sand-mining, seaweed harvesting, shellfish collecting, fishing, etc., as well as non-consumptive activities, such as boating on estuaries, off-road vehicles on beaches and other recreational activities which are surf-related.

Certain areas are near pristine, while other areas along the coast are currently over-utilised. The coastline has tremendous potential for the development of tourism, subsistence fishing, recreation and conservation. This potential is currently not being realised.

The coastline is a national asset, which does not cost money – it is free. Both negative and positive forms of human impact need to be well-managed in the new Buffalo City. This will also lead to the upliftment of the small coastal villages and their inhabitants.

Currently, deficiencies in the management of the coastline and estuaries is leading to their degradation. Activities such as uncontrolled boating, illegal poaching, illegal vehicular traffic, uncontrolled pollution (oil, sewerage, agricultural and plastics) etc. are having a negative impact on the coastline, beaches and estuaries.

The potential income from legal subsistence fishing activities does not materialize in the coastal communities due to indiscriminate illegal poaching of marine living resources such as abalone (perlemoen), crayfish etc.

The coastline of the BCM is one of the natural treasures which needs to be utilised in a sustainable way, to the benefit of all citizens of Buffalo City and visitors to the city.

7.2.3 DISASTER MANAGEMENT

Disasters occur as a result of a complex interrelationship of underlying causes, dynamic pressures, unsafe conditions and trigger events, and often result in widespread human, economic and environmental losses.

In the East London area, Disaster Management has been practiced since 1987 and has primarily been carried out as a secondary function. Full-time service is currently being provided. In King William's Town, there is no dedicated office or staff and services are also being provided as a secondary function. Regarding the other areas of Buffalo City, there is a full-time office at Amatole District Municipality but staff are generally unavailable to assist Buffalo City.

The Buffalo City Disaster Management Centre is at present poorly-equipped in terms of staff, equipment (e.g. IT equipment and vehicles) and funding. The Centre is currently functioning on an ad hoc basis and where the demand is greatest.

The disaster management services for the Buffalo City area are described below in terms of the services required to plan for, to respond to and recover from potential disaster scenarios, which include: risk and vulnerability assessments; prevention and mitigation; preparedness; response and relief; and recovery, rehabilitation and reconstruction.

Risk and Vulnerability

This service helps to identify and map the risks and vulnerabilities that exist within the Buffalo City area so that appropriate prevention, mitigation and response plans and strategies may be developed.

Prevention and Mitigation

This service provides for developing strategies and promoting the need to reduce the risk of disasters occurring (particularly in association with new development) and reducing the scale or significance of any given disaster. This also includes commenting on development proposals from the perspective of proactive disaster management.

Preparedness

The service includes preparing new disaster management plans, regularly reviewing, auditing, evaluating and maintaining existing plans, and facilitating education, training and awareness programmes, including providing ad hoc advice and service to micro-communities in the towns, at institutions and for commerce and industry.

Response and Relief

The service includes response to disasters in accordance with Disaster Plans, ensuring improvements to response actions through evaluation, and facilitating provision of appropriate relief when disasters occur.

Recovery, rehabilitation and reconstruction

The service entails to facilitate appropriate relief recovery and rehabilitation in the event of a disaster occurring in the Buffalo City area.

7.2.4 WASTE MANAGEMENT

The waste management data presented generally provides a description of conditions within the Buffalo City Municipality, but some information is still only available for the former ELTLC and KWT TLC/TRC areas.

The solid waste generated in Buffalo City can be divided into two types, general and hazardous waste. General waste includes the following categories:

- ❑ Domestic, including organic waste (i.e. food and garden waste).
- ❑ Commercial and industrial waste and building rubble.
- ❑ Agricultural waste.
- ❑ Hazardous waste consists of:
 - ❑ Domestic waste.
 - ❑ Sewage sludge and chemical waste.
 - ❑ Medical and industrial waste.

Currently most waste is being disposed of in landfills due to a low awareness of the possibilities of waste reduction, re-use and recycling. Programmes for waste reduction, re-use and recycling are currently not in place. Out of the total collected waste stream (paper, metal, glass, organics and plastics), 10-40% (by weight) consists of recyclable and recoverable elements.

The estimated quantity of solid waste generated within the city is 255,000 tons per annum, out of which 30,000 tons is industrial waste (year 2000).

The growth of waste is influenced by a change in living standards as well as by factors such as population growth; the HIV/AIDS epidemic; growth in industry; the extent of inclusion of waste from other areas outside Buffalo City; and the percentage of waste recovered and recycled. The growth rate for the waste stream between 1990 and 1996 shows an annual growth rate of 1.5%. The future growth rate is estimated to be up to 2 - 4% per year.

There are at present six formal operating sites in Buffalo City: King William's Town, NU 2 in Mdantsane, Second Creek, Ducats, Rieger and Gonubie. There are no formal operating sites for hazardous waste.

A number of sites for general and garden waste disposal have been formally closed since the late 1980's; Zwelitsha, Phakamisa, Ilitha, Beacon Bay, West Bank, Ducats, NU 12 in Mdantsane, Highgate and James Pearce Park. The following sites for hazardous waste have also been formally closed: Dimbaza, Berlin, James Pearce Park and Old Everite Site.

The majority of former landfill sites have been closed without obtaining a DWAF permit for the closure process (a statutory requirement applicable since 1989). There are plans to close Ducats, Second Creek and NU 2 in Mdantsane in accordance with DWAF Minimum Requirements. Some former landfill sites have been left to a process of natural rehabilitation only. There is currently no monitoring of closed sites being undertaken.

According to the Quality of Life Survey carried out in Buffalo City in 2001, an average of roughly 70% of the people in Buffalo City have their waste removed once a week by the local authority. The next most common way of getting rid of rubbish is by burning it in a pit, with nearly a quarter of the households doing so.

The general lack of knowledge regarding waste sources (especially within rural areas), types and volumes seriously affects waste planning and makes it very difficult to ensure efficient collection and treatment of waste. Valuable resources are being wasted and the possibilities for additional job opportunities and local economic development are not being seized and exploited.

The effects of the current level of waste collection and management services include indiscriminate and illegal dumping of waste, especially in the R293 settlements (e.g. Zwelitsha, Mdantsane) and Duncan Village; illegal burning of waste (including industries and rural areas); increased health risks; and environmental degradation. The accumulation of waste in especially the previously disadvantaged areas is a serious problem and has effects on the infrastructure i.e. the blockage of stormwater drains and sewers, resulting in effluent flow on the surface.

Refer to Map B6: Solid Waste Management; Current Situation

7.2.5 POLLUTION

Mdantsane and the western and eastern seaboard bordering the East London area do not receive any service from the Environmental Section of the City Health Department, as these areas are directly serviced by the Department of Health and Amatole District Municipality. Information on these areas was not available.

7.2.5.1 Water Pollution

Buffalo City Municipality is obligated to provide safe drinking water, to address public health risks of polluted environmental water affecting the entire community, and to comply with various legal requirements. This is achieved by means of water-quality monitoring, which is an essential service, information- dissemination and instituting timeous remedial action.

It is important to note that information on water pollution control and monitoring is available for East London and King William's Town only.

The poor operational state and inadequate maintenance of most of Buffalo City's sewerage treatment works (design weaknesses, overloaded capacity, faulty equipment and machinery) has resulted in a major pollution problem and impacts on the quality of water resources, with our marine water quality standards consequently not meeting regulatory standards.

The greater King William's Town area is currently served by five existing sewerage treatment works located at Bisho, Breidbach, Schornville, Zwelitsha and Ilitha. Certain of the treatment works are too small, or do not work at all, resulting in untreated or partially-treated sewerage being discharged into the Yellowwoods or Buffalo rivers. These rivers in turn discharge into the Laing Dam, the main drinking water supply dam for the greater KWT area. The former KWT TLC proposed the construction of a regional sewerage treatment works.

The Buffalo River catchment including the Bridle Drift Dam are potentially at risk from the input from streams in the Mdantsane area, viz. the Shangani, Sitotana, Tindelli and Mdantsane streams, which periodically become heavily polluted resulting from faults, vandalism and backlogs in the conveyancing systems. Regular monitoring of these streams is in place to promote early remedial attention and prevent algae blooms from encroaching into the Bridle Drift Dam.

The discharges from treatment works in the East London area (including East Bank and Central) do not consistently meet DWAF permit conditions, and at times contribute to the pollution of marine and river resources. The periodic discharge of raw sewerage to sea at Hood Point on the West Bank is currently being addressed by the phased construction of fine screening and a marine outfall, which will produce an effluent in compliance with DWAF permit requirements.

In summary, the natural environment, including dams, rivers, streams and marine environment, is at risk of periodic high bacterial pollution levels which can partly be ascribed to the discharge of untreated or partially treated sewage into the natural environment.

The overall picture that emerges is a very high quality, safe, well-monitored water supply in the urban areas, contrasted with a variety of mainly unmonitored water supplies in the more rural areas of Buffalo City. The latter include both formal and small supplies and informal usage of streams and dams, which are prone to

environmental water pollution. The effects of the latter unmonitored and untreated water supplies, and insufficient appropriate attention to environmental water pollution, are unsafe drinking water and the danger of waterborne epidemics, such as cholera. Apart from the well-being of the community, this has potentially negative effects on tourism and industrial development.

7.2.5.2 Air Pollution

Air is an essential resource to sustain life. However, it is also the receiving medium for gaseous waste. Noise and odour pollution also travel in air. Wastes in the atmosphere impact negatively on both the natural and human environments.

The monitoring of air pollution is a core local government function and a constitutional obligation. The quality of air in the Buffalo City area is a pressing environmental issue. It affects especially the poor and unemployed, but also the health of workers and increases the costs of industrial processes. Of concern is the indoor air quality in some dwellings that are not well ventilated and burn wood and paraffin as fuel. Air pollutants cause severe health impacts such as respiratory and heart problems. Sulphur dioxide also damages vegetation, reducing growth and yield.

It is the responsibility of the Buffalo City Directorate of Health Services, Environmental Health Department: Air Quality Unit, to regulate sources of air pollution within Buffalo City. The Air Quality Unit of the Buffalo City Environmental Health Department is authorized to implement and enforce the mandate of the Air Pollution Prevention Act and the local by-laws. It is the Unit's objective to achieve and maintain such levels of air quality as will protect human health and safety, and to the greatest degree practicable, prevent injury to plant and animal life and property, promote social development and facilitate the enjoyment of the natural attractions of Buffalo City.

No air pollution services are provided either in the King William's Town or Mdantsane areas. The necessary resources in terms of staff and equipment are not available within the municipality. Buffalo City can therefore not currently participate in the National Air Quality exercises, or meet its statutory obligations in this regard.

7.2.5.3 Land Pollution

At present, industrialised areas such as Dimbaza and King William's Town have reported incidents of illegal dumping of toxic waste in open spaces, which has resulted in the pollution of arable land. Faecal and parasitic loads have been identified in the soil between Buffalo River and Schornville to Ginsberg.

In KWT an area comprising approximately 50 ha was used for the disposal of tannery toxic waste from the 1950's, and this has resulted in land being polluted with organics, chrome and sodium.

It has been noted that leachate from most of the landfill disposal facilities is currently not being disposed of according to DWAF requirements. The inadequate design of the existing landfill sites is seen as the reason for the leachate pollution occurring. The enforcement of DWAF's minimum requirements for handling, classification and disposal of hazardous waste is not correctly or effectively being undertaken.

Refer to Map B7: Pollution; Current Situation

7.2.6 ENERGY

Energy (e.g. electricity) is essential for meeting basic needs, economic growth and urban development. At the same time, its use has crucial environmental impacts. In the urban areas energy is used excessively in the development sector (e.g. industry) and there is a scarcity of energy in the low income sector (i.e. poor communities). There is a high dependence on coal and coal-fired electricity. Coal generated electricity contributes to environmental problems such as global warming, environmental degradation through the activities of open cast mining, the detrimental effects of acid deposits on plants and animals (including acid rain) and deteriorating air quality in areas like Gauteng and Mpumalanga. Non-electrified homes in Buffalo City use mainly paraffin, candles and rechargeable batteries and some use local wood which has serious environmental impacts e.g. deforestation and soil erosion.

7.3 KEY FINDINGS

The key findings within the environmental context can be summarised in the following weaknesses, threats strengths and opportunities.

7.3.1 WEAKNESSES AND THREATS

The different departments within the environmental sphere are all presently dealing with insufficient resources concerning staff, vehicles, equipment and funding. There is a limited inter-departmental collaboration, which results in territorial friction.

Concerning environmental rehabilitation, there are poor to non-existent levels of service in the recently amalgamated rural areas of Buffalo City. The rural areas are also lacking in recreational areas. Generally, there is insufficient protection of

Reserves due to inadequate policing, as well as insufficient conservation areas to adequately conserve existing biodiversity. A threat lies in the uncontrolled and increasing spread of invasive alien vegetation such as Black Wattle trees.

Increased dumping and illegal squatting is a potential threat to the public open spaces in Buffalo City. Increased vandalism is a threat to the beaches and coastlines, as well as degradation of ecologically sensitive coastal and estuarine systems, due to limited environmental awareness.

In the remote areas of Buffalo City there is a lack of safety, which is a problem for the development of tourism, specifically focusing on the coastline, estuaries and beaches.

With regards to general environmental issues, there is a lack of capacity in environmental management as well as limited public participation being undertaken with regards to pollution control and monitoring. There is no data or statistics available on air pollution in Buffalo City, but the concentrations of sulphur dioxide, nitric oxide, ozone and other harmful substances are likely to lead to further health problems.

At present the co-ordination of waste minimisation (re-use and recycling) is minimal and there is interference with the waste stream by informal waste-collectors who constitute survivalist enterprises. Generally, there is little or no focus on waste minimisation through prevention and reduction, and the level of monitoring/policing of commercial and industrial waste is low. Buffalo City is suffering from an insufficient number of transfer stations, including stations for hazardous waste. There is furthermore low public awareness of waste issues, the facilities are often vandalised and staff security is inadequate.

A serious threat is the continuation of illegal dumping at transfer stations, and there is an absence of legal support in Courts for deterrence of illegal waste management activities. Generally the process of changing or making improvements to the system waste management is very slow.

Concerning Disaster Management, the municipality's approach is generally reactive rather than proactive. There is also a lack of an adequate institutional framework or support for Disaster Management in Buffalo City. A general threat to Buffalo City is the occurrence of natural disasters and the lack of knowledge about the existence of disaster management within the municipal area. Overall issues that pose threats are the fragile economy, rapid population growth, rapid urbanisation, HIV/AIDS, poverty, unemployment, conflict, lack of rural development, and an expensive and disjointed transport system.

7.3.2 STRENGTHS AND OPPORTUNITIES

The different departments dealing with environmental issues all have dedicated and skilled staff. There is a general understanding of the environmental legislation and national policy. A solution to deal with the problem of the shortage of staff is to contract out certain functions.

The existing nature reserves are well-managed public amenities and conservancies of bio-diversity, and there are a number of formal public open spaces and green belts. It is important to develop urban and rural afforestation programmes, which provide community uses (e.g. firewood and medicinal uses), improve appearance and address poverty.

There is potential in the development of partnerships with local communities for the eradication and control of invasive alien vegetation. Tourism, educational and recreational potential of existing Nature Reserves can also be developed through partnerships with local communities and the private sector.

Significant tourism potential lies in the largely unspoilt and remote beaches, coastline and estuaries within Buffalo City, but to promote and make use of these successfully, it is very important to improve safety.

Regarding scientific services, all known effluent-producing industries in the former East London-Berlin area have been inspected and issued with Trade Effluent Permits.

There is a system in place for monitoring the type, quantity and classification of waste produced in Buffalo City as well as a system for addressing illegal dumping and recovering the waste. There is also general support for waste minimisation through Local Agenda 21 initiatives. Provisions are being made for inclusion of hazardous waste treatment facilities in the development of Buffalo City's new regional waste disposal site. Moreover, pilot composting projects have been implemented, along with Clean City public campaigns and educational programmes.

Important prospects for the future lie in the development of municipal regulations, which are specific to the role of Community Services and its service requirements relative to national requirements. Furthermore, it is relevant to increase the quantity and range of waste recovered from the waste stream; to develop financial incentives to encourage domestic, commercial and industrial waste minimisation; to increase development of small-scale composting initiatives for soil/grass waste generated at informal settlements; and to encourage public-private initiatives. The potential exists to include the development of solar energy, wind energy and energy from waste systems.

Concerning Disaster Management, there is a large resource existing within the Buffalo City Municipality and within the community as a whole, which may be available to assist with any aspect of Disaster Management. There are positive

benefits associated with the “city with a small-town culture”, which can potentially provide for a more rapid response and resolution of a disaster event. It is important to develop and establish Disaster Management as an integrated multi-level, multi-sectoral function in Buffalo City via the IDP process.