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BOTSWANA

CHAPTER 4: BOTSWANA

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4 BOTSWANA

4.1 Constitutional requirements for environmental protection in Botswana

The right to a clean environment (a so called third generation right) is absent from the Constitution of Botswana. However, Botswana's commitment to the sustainable management of natural resources is supported by various policies and legislation as well as by Vision 2036. One of the four 'Pillars' of Vision 2036 is 'Sustainable Environment', which states that:

“By 2036 sustainable and optimal use of natural resources will have transformed our economy and uplifted our people's livelihoods. This pillar includes the ecosystem functions and services, sustainable utilization of natural resources, water security, energy security, sustainable land use and management, sustainable human settlements, climate resilience and disaster risk reduction and pollution and waste.”¹

Sustainable development is one of the four principles that underpins the process of developing the National Development Plans, the other three being rapid economic growth, economic independence and social justice.²

4.2 Institutional and administrative structure for environmental impact assessment in Botswana

4.2.1 Ministry of Environment, Natural Resources Conservation and Tourism

The overall responsibility for the environment lies with the Ministry of Environment, Natural Resources Conservation and Tourism. The Ministry, and other organisations with portfolio responsibilities related to it, also supervises the following statutory authorities (see Figure 4.1):

- Department of Environmental Affairs
- Department of Waste Management and Pollution Control
- Department of Forestry and Range Resources

¹ Presidential Task Group, 2016. <http://www.gov.bw/en/Ministries--Authorities/Ministries/Ministry-of-Local-Government-MLG1/News/VISION-2036-Prosperity-for-all/>

² NCSCA (National Conservation Strategy Coordinating Agency) & MFDP (Ministry of Finance and Development Planning), 2001. *Environmental Keynote Paper*. Discussion Draft. Gaborone, 2001.

- Department of Wildlife and National Parks
- Department of Tourism and the Botswana Tourism Organisation (formed via the Botswana Tourism Organisation Act, No. 14 of 2009)
- Department of Meteorological Services
- Department of National Museums and Monuments.

4.2.2 Department of Environmental Affairs

The Environmental Assessment Act, No. 10 of 2011 establishes the Department of Environmental Affairs (DEA) as the competent authority responsible for administering and controlling environmental impact assessment (EIA) activities in Botswana. The overall objective of the DEA is to foster sustainable development by coordinating the protection of the country's environment and the conservation of its natural resources.

More specifically, the DEA aims to:

- a) Coordinate the formulation and implementation of environment-friendly policies, legislation, programmes and projects to ensure that the short, medium and long-term impacts on the natural resources and environmental capital of the country are at least neutral and at best highly beneficial;
- b) Ensure that due regard is given to environmental considerations in the National Development Planning process;
- c) Provide its clients and stakeholders with sound, objective and impartial advice, guidance and coordination, covering all activities involved in the planning, design, use and management of natural resources and environmental services;
- d) Act as the Secretariat to the Environmental Affairs Council and provide all services required by the Council to enable it to function both effectively and efficiently;
- e) Implement effective strategies for the promotion of the National Policy on Natural Resources Conservation and Development and the National Conservation Strategy Action Plan throughout Botswana and to publish its achievements with a view to changing public attitudes and perceptions about natural resource conservation for development;
- f) Ensure that the country's environment and natural resources are managed according to nationally and internationally acceptable scientific principles;

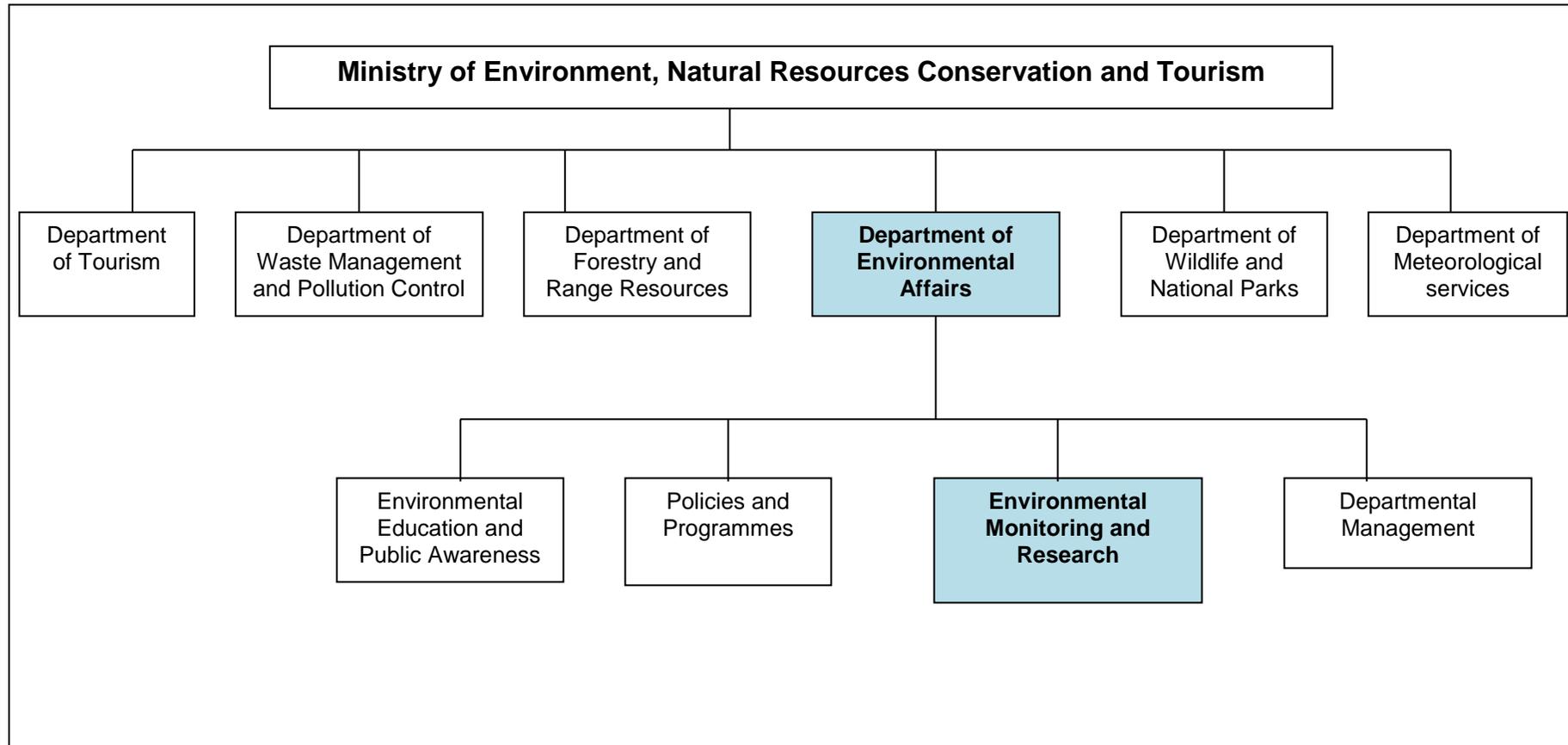


Figure 4.1: Organisational structure of the Ministry of Environment, Natural Resources Conservation and Tourism

- g) Coordinate environmental research and development efforts between all interested parties and initiate new research and demonstration projects where gaps exist;
- h) Initiate and coordinate the drafting of a research strategy for the Department and promote the development of a unified and consolidated environmental research strategy for the country;
- i) Introduce and promote the use of modern and appropriate technology to improve information management and establish a national environmental data storage and retrieval system;
- j) Prepare and update the *State of the Environment Review* on a regular basis;
- k) Promote, institutionalise and coordinate an environmental education programme at all levels of Botswana society;
- l) Promote environmental education through public awareness programmes and other relevant means, and thereby help Botswana to become an environment-friendly and conscious nation;
- m) Develop effective public relations services regarding Botswana's environmental and natural resources policies, legislation, programmes and projects;
- n) Coordinate the fulfilment of Botswana's obligations under international environmental conventions, agreements and protocols, and act as the national focal point; and
- o) Ensure that the Department is efficiently managed and provided with the necessary resources, and ensure that all resources allocated to the Department are effectively and optimally utilised.³

To perform its duties, the DEA has three professional divisions: Environmental Education and Public Awareness, Environmental Monitoring and Research, and Policies and Programmes. An additional administrative division is the Departmental Management division (see Figure 4.1). All activities relating to EIA fall under the Environmental Monitoring and Research Division. The DEA's roles and responsibilities in this regard are as follows:

- a) Require and ensure that policies, programmes and development projects are accompanied by professionally prepared and approved Environmental Impact Statements (EISs);
- b) Examine the Terms of Reference and evaluate and endorse the EISs of development policies, programmes and projects;
- c) Implement the provisions of any appropriate EIA legislation;
- d) Provide objective and impartial environmental assessment services in compliance with the requirements of the relevant legislation;

³ Ministry of Lands, Housing and Environment. 2011. *Department of Environment: Statement of objectives and functions*. www.envirobotswana.gov.bw

- e) Prepare manuals and guidelines for the preparation of EIAs and assist in the development of sectoral EIA guidelines;
- f) Examine the Terms of Reference and evaluate EIA reports of all development policies, programmes and projects;
- g) Monitor the environmental implications of national policies, programmes and projects and recommend mitigation measures;
- h) Undertake environmental audits in accordance with the appropriate legislation;
- i) Monitor the implementation of approved EIAs; and
- j) Provide professional advice to central government, local authorities and the public on the preparation of EIAs.⁴

The government is pursuing a programme of decentralisation of many of its institutional functions, including environmental affairs. To this end, the DEA has opened offices in the following towns: Maun, Tsabong, Francistown, Serowe, Kasane, Selibe Phikwe and Ghanzi.

4.2.3 Inter-sectoral cooperation

The natural resource base in Botswana, like everywhere else in the world, is an integrated functional system. Its utilisation, administration and management is, however, organised along separate but inter-related development and conservation processes for administrative expediency. All ministries in the central government have portfolio responsibility for some aspect(s) of development. Some ministries also have responsibility for certain aspects of conservation. A number of statutory and non-statutory boards has been established to administer, manage and control some aspects of natural resources, their products and services. The main ministries include:

- Agriculture
- Minerals, Energy and Water Resources
- Trade and Industry
- Works and Transport
- Local Government
- Lands and Housing.

Various legislative provisions enable the different ministries and departments to enforce conservation practices in their fields (see section 4.3.8). For example, the Agricultural Resources Conservation Act of 1974⁵ gives the Agricultural Resources Board extensive powers over the protection of agricultural resources, including soils, water and plant life, but these powers will be transferred to the Ministry of Environment, Natural Resources Conservation and Tourism following the revision of the Act (as noted in Footnote 5).

⁴ Ministry of Lands, Housing and Environment. 2011.

⁵ This Act, the Herbage Preservation Act of 1977 and the Forest Act of 1968 are being consolidated into a new Forest and Range Resources Bill. This was due to be finalised in 2018, but has yet to be realised.

There are certain institutional shortcomings in the current arrangements, which include the following: gaps in environmental policy formulation; inadequate integration of management; limited monitoring capability; insufficient coordination; lack of capacity to resolve differences; and inadequate response capability.⁶

It has also been observed that the enforcement of the various legislative provisions has been inadequate. A number of reasons have been given, including the following:

- The externality of the law;
- The poor and/or inadequate communication of the law;
- Administrative and institutional irrationality and deficiency;
- Dualistic assignments to enforcing agencies;
- Reliance on criminal sanction as a primary sanction, instead of it being seen as a last resort;
- The inadequacy of licensing as an instrument of administrative control;
- The unavailability of viable alternatives to prohibited activities; and
- The command and control posture of the law.

4.2.4 Environmental liaison officers

Environmental liaison officers should be designated within each of the sectoral ministries or departments and the local authorities. These officers are responsible for ensuring that their organisation complies with the National Policy on Natural Resource Conservation and Development and the National Conservation Strategy (1991)⁷ and for liaising closely with the DEA. At present only the Ministry of Transport and Communications' Roads Department has made provision for Environmental Liaison officers and there are two active officers.

4.3 Policy and legal framework for EIA in Botswana

4.3.1 National Conservation Strategy

In 1991, the Government of Botswana prepared the National Conservation Strategy in order to ensure the sustainability of future development, whenever and wherever possible. At that time, it was already clear that many of the country's natural resources were under pressure, raising concerns about the ability of the resources to meet the needs of future generations.⁸ The impacts

⁶ Larsson, J, 1998. *Review of the National Policy on Natural Resources Conservation and Development*. Swedforest International AB.

⁷ Kalikawe, MC, 2001. *Botswana: Integrating biodiversity into the tourism sector*. Gaborone: Department of Tourism.

⁸ Republic of Botswana, 1990. *National Policy on Natural Resources Conservation and Development*. Government Paper 1 of 1990. Gaborone: Government Printer.

of these development pressures are still manifest in the following:

- Pressure on water resources;
- Degradation of rangeland pasture resources;
- Depletion of wood resources;
- Exploitation of veld products;
- Pollution;
- Resource pressure from the growth in the human population;
- Depletion and conservation of wildlife resources; and
- The need to improve environmental awareness.

Thus, in order to achieve sustainable development as envisaged in the National Development Plan, the primary goals in formulating the Strategy were to develop policies and measures that a) increase the effectiveness with which natural resources are used and managed, so that beneficial interactions are optimised and harmful environmental side effects are minimised; and b) integrate the work of the many sectoral ministries and interest groups throughout Botswana, thereby improving the development of natural resources through conservation.

The government has also identified a series of detailed strategy goals. These specifically cover development goals, such as:

- The development of new and better natural resource uses that are sustainable;
- The optimisation of the existing uses made of all natural resources;
- The development of multiple, rather than single-purpose, natural resource uses;
- The diversification of the rural economy in order to generate new jobs;
- The increased education of and participation by all members of society in improving the environment;
- The development of links with neighbouring countries in conserving resources; and
- The establishment of a balance between population growth and the supply of natural resources.⁹

It also involves conservation goals, namely:

- The conservation of all main ecosystems, wildlife and cultural resources;
- The protection of endangered species;
- The maintenance of stocks of renewable resources (e.g. veld products), while increasing their sustainable yields;
- The control of the depletion of exhaustible resources (e.g. minerals) at optimal rates;
- The distribution of incomes and rewards more equitably, in the interests of conserving

⁹ www.envirobotswana.gov.bw

natural resources;

- The cost-effective restoration of degraded renewable natural resources, including improved capacity for regeneration of the veld; and
- The prevention and control of pollution.¹⁰

The fulfilment of these detailed goals entails encouraging developments that minimise environmental costs and enhance the quality of the environment. It likewise requires that when trade-offs involving the use of natural resources have to be made, the environmental, social and economic costs are fully considered.¹¹ It was recognised early on that specific legislation was required to ensure that impacts would be assessed systematically and appropriate mitigation plans implemented for each development.

Concepts in support of sustainable development, which are not explicitly addressed in the Strategy include gender, climate change, resettlement and community safety.

4.3.2 Climate Change Policy in Botswana

The country's climate vulnerability is closely tied to its existing high level of water scarcity. The government of Botswana has identified five key sectors as particularly vulnerable: water, health, crops, grasslands and livestock, and forestry. However, the government does not consider climate change a national priority, and the subsequent lack of guiding policy, legislation, and strategy on responding to the impacts of climate change, as well as a dearth of adaptation programmes and projects within the country, will only exacerbate existing and expected climate-related threats.¹² However, the potential for future climate change and the associated environmental threats is acknowledged in the National Development Plan 10. Climate adaptation and mitigation policies are in place in some sectors as evidenced by governmental support for solar energy technologies in the energy sector.

4.3.3 Environmental Assessment Act

Gazetted in June 2011, the Environmental Assessment Act, No. 10 of 2011, repeals the 2005 EIA Act and addresses six gaps identified in the former Act. These are:

- The preparation of EIA documentation;
- A review process of Environmental Impact Statements (EISs);
- Authorisation of EISs;
- *Post facto* EIAs for projects already implemented; and
- The establishment, management and functions of an Environmental Assessment Practitioners Board.

¹⁰ Ministry of Lands, Housing and Environment. 2011.

¹¹ Ministry of Lands, Housing and Environment. 2011.

¹² Crawford, A. 2016. Review of current and planned adaptation action in Botswana. CARIIA Working Paper no. 7. International Development Research Centre, Ottawa, Canada and UK Aid, London, United Kingdom.

The 2011 Act defines the term ‘environment’ broadly as including *“the physical, ecological, archaeological, aesthetic, cultural, economic, institutional, human health and social aspects of the surroundings of a person.”*

4.3.4 Regulations

The EA Regulations (Statutory Instrument (SI) No. 58 of 2012) were promulgated in 2012. The Regulations include a list (Schedule 1 – see Appendix 4-1) of mandatory projects to be subjected to an EIA as part of the process of obtaining an environmental authorisation (referred to as an ‘authorisation’ in the Act and Regulations). The Regulations specify the process for conducting an EIA, developing environmental management plans, decision making with respect to applications for environmental authorisation

4.3.5 Permits and licences

No person can undertake or implement a listed activity (Schedule 1 in the Regulations) unless the environmental impact of the proposed activity is fully taken into account according to the provisions of the Act, and an **Environmental Authorisation** has been issued in terms of section 12 of the Act (see section 4.4.4 of this Handbook).

The Environmental Authorisation will be valid for the period stipulated and must be renewed at the end of the period.¹³ The competent authority, which is the DEA, may revoke the authorisation at any time, subject to the requirements of section 15(2) of the EA Act, if:

- There is an unanticipated, irreversible, adverse environmental impact; and/or
- A developer fails to comply with any of the terms and conditions listed on the authorisation.

Written consent from the DEA is required to transfer the Environmental Authorisation to another person or entity.¹⁴

Some activities will need a permit in addition to the Environmental Authorisation. For example, a quarry or mine will require a permit from the Department of Mines to operate.

4.3.6 Offences and penalties

The Environmental Assessment Act clearly specifies what is considered an offence, and penalties are specified for each offence. These are summarised in Table 4.1.

¹³ Section 14 of the EA Act.

¹⁴ Section 16 of the EA Act.

Table 4.1: Offences and penalties in terms of the Environmental Assessment Act of 2010

Offence	Penalty
Section 4(2): Unauthorised activity, i.e. without an Environmental Authorisation	P100 000, a maximum of 5 years in prison, or both
Section 4(5): Failure to rehabilitate an area affected by an unauthorised development Section 16(2): Unauthorised transfer of an Environmental Authorisation to a third party Section 12(4): Wilful obstruction or the provision of false information to a DEA official or practitioner	P1 000 000, a maximum 15 years in prison, or both P2000, 3 months in prison, or both P100 000, a maximum of 5 years in prison, or both
Section 9(5): Implementing a listed activity without an Environmental Authorisation after being instructed to submit an EIA	P1 000 000, a maximum of 15 years in prison, or both
Section 33(1): A member of the Board fails to disclose a conflict of interest when considering a given subject.	P2000, 3 months in prison, or both
Section 37(2) A person who practises as an EAP without being registered and certified under the Act	P50 000, a maximum of 2 years in prison, or both
Section 47(2): An EAP who fails to return a certificate of practice after having been removed from the register	P2000, 3 months in prison, or both
Section 49: Any illegal activity relating to registration as an environmental practitioner, or unauthorised modification of the register	Fine not exceeding P2000, a maximum of 3 months in prison, or both
Section 63 (2): A person appointed, employed or duly authorised by the competent authority or Board, who discloses information unlawfully	P2000, 3 months in prison, or both
Section 64 (3): A practitioner who engages in a consultancy where the engagement gives rise to a conflict of interest, or who fails to disclose a situation where a conflict of interest is likely to arise.	P2000, 3 months in prison, or both
Section 70(3) A person who is not a registered and certified EAP who practices as or claims to be or a registered and certified EAP who employs a suspended or deregistered EAP.	P50 000, a maximum of 2 years in prison, or both

A general penalty is added in the EA Act of 2011, which provides for a fine not exceeding P50,000 or a term of imprisonment of up to two years for any person who contravenes the provisions of the Act of 2011, for which no penalty is otherwise provided.

4.3.7 Fees

The Regulations require fees to be paid to the competent authority before the review of a project brief, or environmental assessment report. The fees payable are laid out in Table 4.2.

Table 4.2: Fees for consideration of EIA reports

Fee payable for	Fees (P)
Review of project brief	10
Review of environmental assessment reports will be related to project cost as follows:	
Less than P100 000	100
P100 000 - P499 999	250
P500 000 - P999 999	500

Fee payable for	Fees (P)
P1 000 000 - P9 999 999	750
P10 000 000 - P49 999 999	1 000
P50 000 000 or more	1 500

4.3.8 Guidelines

A general guideline has been developed for EIA and strategic environmental assessments in Botswana.¹⁵ The guideline specifies how to comply with the procedures and requirements of the old Environmental Assessment Act, 2005 in undertaking an EIA or strategic environmental assessment in Botswana. Despite their age, the guidelines are still relevant, though not legally enforceable. The DEA is however currently reviewing these guidelines with funding secured through the United Nations Environment Programme (UNEP). In addition, the Environmental Assessment Act of 2011 makes provision for Regulations to be made regarding specific guidelines for various stages of the EIA process, the content of the EIA report, the review process, and the like.

A number of sector-specific guidelines contain references to the EIA requirements on their activities. They include:

- Agriculture projects;
- Infrastructure projects;
- Extractive industry;
- Energy industry;
- Waste management industry;
- Metals processing industry;
- Glass manufacturing industry;
- Chemicals, rubber and plastics industry;
- Food processing industry;
- Leather and textile industry;
- Wood and paper industry;
- Firing ranges, gunpowder and explosives industry;
- Tourist lodges outside urban areas; and
- Plans, programmes and policies.

The Department of Water Affairs, which has been at the forefront of EIA application in Botswana, has established procedures developed through practice in preparing EIAs. The National Water Master Plan has also identified topics that should be included in environmental assessments of water development projects.¹⁶ These are: hydrology, plant ecology, faunal studies, archaeology, medico-ecological aspects, sociological aspects, changes in land use, and tourism and

¹⁵ www1.eis.gov.bw/eis/EIA

¹⁶ Republic of Botswana, 1992. *National Water Master Plan*. Gaborone: Government Printer.

recreation. Similarly, the Department of Roads, in conjunction with the DEA, has prepared guidelines for undertaking EIAs for road projects.

4.3.9 Environmental standards

The Keynote Paper prepared for National Development Plan 9 identified the urgent need for Botswana to develop environmental quality and emission standards. This was set as a task under the Ministry of Health in National Development Plan 9.¹⁷ Although non-numerical air quality regulations are found in the Atmospheric Pollution (Prevention) Act of 1998, it is expected that World Health Organisation (WHO) standards for air quality will be used as a reference until local standards have been adopted. The 2016 draft of NDP 11 has made the development of air quality standards one of the critical goals of the air pollution programmes¹⁸.

At present, Botswana also does not have numerical noise standards. Again, it is expected that WHO standards will be used as a reference until local standards have been promulgated.

Minimum requirements for waste disposal are found in the Waste Management Act of 1998 and in the Guidelines for Disposal of Waste by Landfill.¹⁹

Botswana's water quality standards are summarised in Tables 4.3 and 4.4.

Table 4.3: Wastewater quality standards

Parameter	Units	Maximum allowable discharge for wastewater
Physical and microbiological requirements		
Temperature	°C	35
pH	Units	6.0 – 9.0 units
Dissolved oxygen	%	60
Biological oxygen demand (max.)	mg/l	30
Chemical oxygen demand (filtered) (max.)	mg/l	75
Colour	TCU	50
Total dissolved solids	mg/l	2 000
Total suspended solids	mg/l	25
Faecal coliform	Count/100 ml	1 000
Chemical requirements: Inorganic macro-determinants (mg/l)		
Free and saline ammonia as N		10
Orthophosphate as P or soluble phosphate		1.5
Calcium as Ca		500
Chloride as Cl		600
Residual chlorine		1.0

¹⁷ Jansen, R & Arntzen, JW (eds), 2002. *Environmental Keynote Paper for National Development Plan IX*. Gaborone: National Conservation Strategy Agency, Government of Botswana.

¹⁸ Republic of Botswana, 2016. Draft National Development Plan 11. Available at: <http://www.ncongo.info/wp-content/uploads/2017/02/NDP-11.pdf>

¹⁹ Republic of Botswana, 1997. Guidelines for Disposal of Waste by Landfill. Available at: <http://www.gov.bw/globalassets/mewt/dwmpc/guidelines-for-the-disposal-of-waste-by-landfill.pdf>

Parameter	Units	Maximum allowable discharge for wastewater
Fluoride as F		1.5
Nitrate as N		22
Potassium as K		100
Sodium as Na		400
Sulphate as SO ₄		400
Zinc as Zn		5.0
Chemical requirements: Inorganic micro-determinants (µg/l)		
Arsenic as As		0.10
Boron as B		0.50
Cadmium as Cd		0.02
Chromium VI as Cr		0.25
Chromium (total) as Cr		0.50
Cobalt as Co		1.00
Copper as Cu		1.00
Cyanide as CN		0.10
Iron as Fe		2.00
Lead as Pb		0.05
Manganese as Mn		0.10
Mercury as Hg		0.02
Nickel as Ni		0.30
Selenium as Se		0.02

*Botswana Bureau of Standards BOS 93:2004.

TCU: true colour unit

Table 4.4: Drinking water standards

Microbiological safety determinants			
Determinants	Units	Acceptable limit	
Total coliforms	Count/100 ml	Not detected	
<i>Escherichia coli</i>	Count/100 ml	Not detected	
Faecal coliform bacteria	Count/100 ml	Not detected	
Faecal streptococci	Count/100 ml	Not detected	
<i>Clostridium perfringens</i> ¹	Count/100 ml	Not detected	
<i>Cryptosporidium</i>	Count/volume sampled ²	Not detected	
<i>Giardia</i>	Count/volume sampled ²	Not detected	
Physical, inorganic and organic chemical requirements			
Determinants	Units	Upper limit and ranges	
		Class I (acceptable)	Class II (max allowable)
Colour	TCU	15	50
Conductivity at 25°C	µS/m	1 500	3 100
Dissolved solids	mg/l	1 000	2 000
Odour		Not objectionable	Not objectionable
pH value at 25°C	Units	5.5 – 9.5	5.0 – 10.0
Taste		Not objectionable	Not objectionable
Turbidity	NTU	1	5
Inorganic macro-determinants			
Ammonia as N	mg/l	1.0	2.0
Calcium as Ca	mg/l	150	200
Chloride as Cl	mg/l	200	600
Fluoride as F	mg/l	1.0	1.5
Magnesium as Mg	mg/l	70	100
Nitrate as NO ₃	mg/l	50	50
Nitrite as NO ₂	mg/l	3.0	3.0
Potassium as K	mg/l	50	100

Sodium as Na	mg/l	200	400
Sulphate as SO ₄	mg/l	250	400
Zinc as Zn	mg/l	5.0	10.0
Inorganic micro-determinants			
Aluminium as Al	µg/l	200	200
Antimony as Sb	µg/l	20	50
Arsenic as As	µg/l	10	10
Cadmium as Cd	µg/l	3	3
Chromium (total) as Cr	µg/l	50	50
Cobalt as Co	µg/l	500	1 000
Copper as Cu	µg/l	2 000	2 000
Cyanide (free) as CN	µg/l	70	70
Cyanide (recoverable) CN	µg/l	70	70
Iron as Fe	µg/l	300	2 000
Lead as Pb	µg/l	10	10
Manganese as Mn	µg/l	100	500
Mercury (inorganic) as Hg	µg/l	6	6
Nickel as Ni	µg/l	70	70
Selenium as Se	µg/l	10	10
Organic determinants			
Total organic carbon	µg/l	8 000	8 000
Total trihalomethanes	µg/l	1 000	1 000
Phenols	µg/l	10	10
Chloroform	µg/l	300	300
Aldrin	µg/l	0.03	0.03
Dieldrin	µg/l	0.03	0.03
Chlordane	µg/l	0.2	0.2
DDT	µg/l	2	2
Lindane	µg/l	2	2
Endrin	µg/l	0.6	0.6
Heptachlor	µg/l	0.03	0.03
Heptachlor epoxide	µg/l	0.03	0.03
Methoxychlor	µg/l	20	20
Parathion	µg/l	50	50
Toluene	µg/l	700	700
Xylene	µg/l	500	500
Ethyl benzene	µg/l	300	300

*Botswana Bureau of Standards BOS 32:2009.

1. Analysis should be done biannually but should be carried out more often during the rainy season or during outbreaks of waterborne diseases.

2. Standard volume usually used is 10 litres or 1000 litres.

TCU: true colour unit

NTU: nephelometric turbidity unit

DDT: dichlorodiphenyltrichloroethane

4.3.10 Certification of EA consultants

In terms of section 37(1) of the EA Act of 2011, all environmental assessment practitioners who wish to practise in Botswana must be registered and certified. To this end, section 20 provides for the establishment of the Environmental Assessment Practitioners Board. The Board is responsible for the following:

- Registering and certifying environmental assessment practitioners according to certain quality standards;
- Establishing criteria for such certification;
- Establishing a Code of Practice for environmental practitioners;

- Promoting continual professional development of environmental practitioners;
- Promoting awareness of the role of environmental practitioners;
- Liaising with tertiary institutions to identify relevant, accredited courses;
- Determining subscription fees payable by practitioners; and
- Defining the type of work practitioners may conduct.

The Board will maintain a register of environmental assessment practitioners, and may discipline or suspend them or remove their names from the register (section 43) if they contravene any section of the Act or Code of Conduct. Registered environmental assessment practitioners will be required to pay a fee upon registration and every year thereafter (section 39).

4.4 EIA procedural framework in Botswana

The EIA process under the 2005 EIA Act required a preliminary EIA, followed by scoping and determination of the Terms of Reference for the EIA, followed by an EIA if required. The Environmental Assessment Act of 2011 uses slightly different terminology but the process is similar, as described below and shown schematically in Figure 4.2.

4.4.1 Screening

In Botswana, the term 'screening' means an initial stage in the EIA process where the Minister determines whether an activity should be subject to an EIA or not. This stage was termed the preliminary EIA under the 2005 Act.

As stated above, the 2011 EA Act makes provision for the prescription of a list of activities which require an EIA (see Appendix 4-1). However, unlike the 2005 EIA Act it does not specify categories where a full, partial or no EIA are required (i.e. Categories A, B and C respectively in the 2005 EIA Act). Provision is made for listing of activities which are likely to have significantly adverse effects on the environment, or locations which might be environmentally sensitive.

4.4.2 Project Brief

Under the 2011 Environmental Assessment Act, every application for an Environmental Authorisation for a **project** must be accompanied by a Project Brief, and the formulation of **policies and programmes** must be accompanied by a strategic environmental assessment (see s. 4.4.6).

The Project Brief or strategic environmental assessment must include the views and opinions of interested and affected parties. To this end, the Act requires the applicant (proponent) to do the following:

- Publicise the proposed activity, its effects and benefits in the mass media for a period of at least 21 days; and
- Hold meetings with affected people or communities.²⁰

Under section 6(5) of the Environmental Assessment Act, the DEA may authorise the implementation of the activity if it is satisfied that there are no probable adverse impacts. It may, under subsection 6, request the developer to submit an environmental management plan (see Figure 4.2). However, the DEA may request the applicant to submit more information to allow it to make an informed decision.

If the proposed project is likely to have adverse impacts on the environment, the DEA can reject an application or decide that an EIA is required. It will then direct the applicant to prepare Terms of Reference for the EIA on Form D in Schedule 2 to the EA Regulations. In considering the Terms of Reference, the DEA may carry out its own investigations and/or request more detail in the Terms of Reference before it can approve them (see Figure 4.2).

4.4.3 EIA and Environmental Impact Statement (EIS)

Section 9 of the Act states that the “*EIA shall identify and evaluate the environmental impact of an activity with particular reference to the:*

- *Health, safety or quality of life of people;*
- *Archaeological, aesthetic, cultural or sanitary conditions of the environment; and*
- *Configuration, quality and diversity of natural resources.”*

The EA Regulations include extra matters pertaining to sustainable development which need to be addressed in the statement. These include labour and working conditions (mitigation measures in the statement need to address this) and resettlement. Cross-cutting issues which are not explicitly required to be addressed include gender and climate change.

Section 10 of the Environmental Assessment Act requires the DEA to place a notification in the Government Gazette and specified newspapers at least once a week for a period of **four weeks**, inviting comments and objections from the interested persons. The notice must contain at least the following information:

- Nature and magnitude of the proposed activity;
- Location of the activity;
- Anticipated environmental impact of the proposed activity; and
- The proposed mitigation measures to minimise the negative impacts.

²⁰ Section 7(2) of the Environmental Assessment Act.

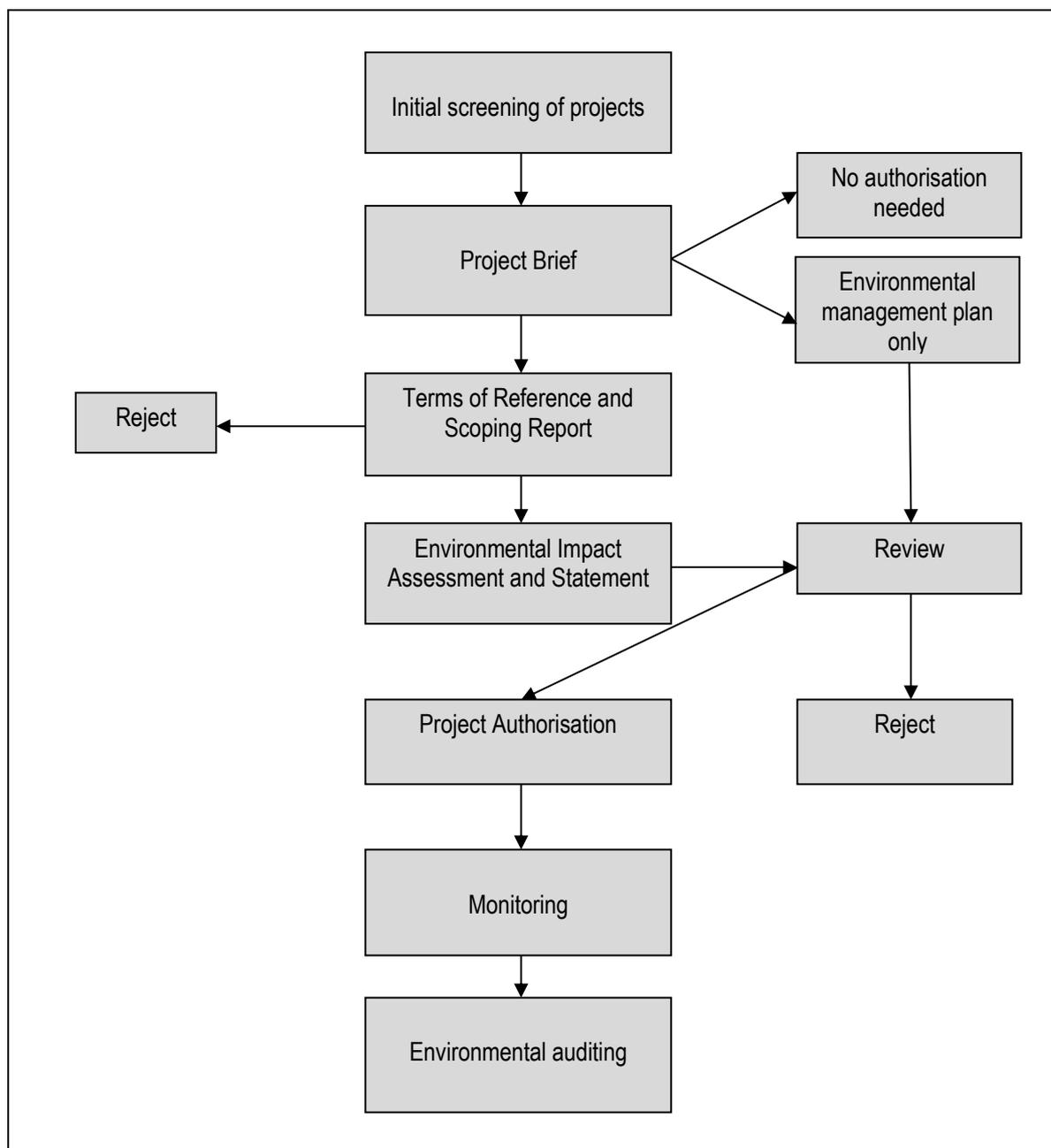


Figure 4.2: EIA process in Botswana

In its decision-making process, the DEA must consider comments or objections raised by the public during this period. However, if the project is considered contentious, the DEA may hold a public hearing.²¹ The procedure for holding a public hearing has not yet been prescribed in Regulations.

²¹ Section 11 of the Environmental Assessment Act.

An important component of the Act is that any Terms of Reference, statement, report, decision or any other document produced under this Act shall be accessible to the public.²²

4.4.4 Review of the EIS

Section 10 of the Act gives the DEA **60 days** in which to review the EIS. After its review, the DEA may invite public comment. Once it is satisfied that the report is adequate and that the proposed mitigation measures will be ‘effective and sufficient’, it may do one of the following:

- Grant an Environmental Authorisation with conditions; or
- Reject the EIS in writing, giving reasons for the decision (see Figure 4.2).²³

Botswana has not developed guidelines for a formal review process, but section 17 requires the competent authority (the DEA) to consider the following:

- The Terms of Reference;
- The EIS;
- Recommendations of other government departments and local authorities;
- Comments and objections made by the interested persons.

A person aggrieved by the decision may appeal to the High Court within 30 days of receiving the decision.²⁴ An important feature of the existing environmental laws is that there is no provision for an individual to seek remedy for environmental damage, unless s/he is personally affected.²⁵

4.4.5 Environmental monitoring and audits

Section 18 of the Environmental Assessment Act requires the authorities to monitor compliance with the agreed mitigation measures, while section 19 makes provision for environmental audits. Specific monitoring of environmental aspects by the proponent is usually required in terms of the approved EMP and the DEA is authorised to demand reports from proponents, in order to demonstrate their progress on the implementation of environmental safeguards.

4.4.6 Strategic environmental assessment

Article 6(1)(b) of the EA Act, 2011 requires that the “*formulation of any policy, programme, legislation, physical plan, shall contain or be accompanied by an approved strategic environmental assessment (SEA).*” The list of activities requiring a SEA is included under Schedule 1 of the Environmental Assessment (EA) Regulations (see Appendix 4-1). The Act defines SEA as “*a process for evaluating the environmental consequences of proposed policy,*

²² Section 62 of the Environmental Assessment Act.

²³ Section 12 of the Environmental Assessment Act.

²⁴ Section 13 of the Environmental Assessment Act.

²⁵ Mpotokwane, M & Keatimilwe, K, 2003. Country Chapter: Botswana. In: SAIEA (Southern African Institute for Environmental Assessment), *EIA in southern Africa*. Windhoek: SAIEA, pp. 45–61.

plan or programme initiatives in order to ensure that they are fully included and appropriately addressed at the earliest stage of decision making, on [a] par with economic and social considerations”. Guidelines on SEA have been developed but they are currently being reviewed by the DEA (see s. 4.3.8).

4.4.7 Trans-boundary impacts

Botswana is a land-locked country and is surrounded by four other countries: Namibia, Zambia, Zimbabwe and South Africa. Section 68 of the Environmental Assessment Act of 2011 specifies that if a proposed activity is likely to have a significant adverse environmental impact on another country, the Minister shall be informed, and s/he will initiate a consultative process, through the Minister of Foreign Affairs, with the concerned country.

4.5 Other relevant environmental legislation in Botswana

Existing environmental legislation is found in a range of Acts (see Table 4.5) and subsidiary legislation. Some clauses in the Mines, Quarries, Works and Machinery Act (Chapter 44:02) of 1971 and in the Monuments and Relics Act, No. 12 of 2001, suggest that EIAs and/or archaeological assessments should be done, but these are not mandatory and the process for doing so is not prescribed. Previous reviews of the laws have identified overlaps that need to be addressed through the introduction of framework legislation.

Table 4.5: Other potentially applicable sectoral requirements

Sector	Primary agency	Title and date of document	Purpose
Water resources	Ministry of Minerals, Energy and Water Resources	Botswana National Water Master Plan, 2006	Provides baseline for water resources planning and management.
	Water Utilities Corporation	Water Act, 1968 (to be revised once new policy is in place)	Defines water rights, ownership and use of public water; prohibits pollution, fouling or poisoning of water, and any interference with the flow of a public watercourse
		Waterworks Act, 1962	Provides for the prevention of the misuse and pollution of water through the enforcement of penalties.
		Water Apportionment Board Act (will be repealed once new policy is in place under a new Water Act)	Establishes the Water Apportionment Board, which will be replaced by a Water Resources Council once the new water policy and Act are in place.
		Aquatic Weeds (Control) Act, 1971	Allows for the control of aquatic weeds through the control of boat movements.
		Boreholes Act, 1950	Will be repealed as part of the law

Sector	Primary agency	Title and date of document	Purpose
			reform process mentioned above.
Air pollution	Ministry of Minerals, Energy and Water Resources	Atmospheric Pollution (Prevention) Act, 1971	Controls air pollution from primary sources.
Waste	Ministry of Local Government	Waste Management Act, 1998	Provides for the management of controlled and hazardous wastes. Requires the provision of waste management plans, the identification of waste management sites, and the control of groundwater pollution. Responsible for planning, facilitation and implementation of the Waste Management Strategy (1998) and the implementation of the Basel Convention.
Forestry and range resources	Ministry of Environment, Natural Resources Conservation and Tourism	Forest Act, 1968 Forest Regulations, 2006 (both under revision – to be replaced by the Forest and Range Resources Act)	Provides for the conservation of forestry reserves.
		Department of Forestry and Range Resources	Forest Policy, 2011
		Herbage Preservation Act, 1977 (under revision – to be replaced by the Forest and Range Resources Act)	
		Conservation of Agricultural Resources Act, 1974 (under revision – to be replaced by the Forest and Range Resources Act)	
Conservation and wildlife	Ministry of Environment, Natural Resources Conservation and Tourism	Wildlife Conservation Policy, 1986 (under revision – due in 2012)	Existing policy focuses on consumptive use of natural resources, but new policy focuses on non-consumptive use, with emphasis on community-based natural resources management and photographic safaris, rather than hunting.
	Department of Wildlife and National Parks	Wildlife Conservation and National Parks Act, 1992, revised in 2002 (under revision – to be promulgated once the Wildlife Conservation Policy is finalised)	Provides for wildlife management and conservation through gazetting of national parks, game reserves and wildlife management areas, in which wildlife conservation and use are the primary land use.
		Wildlife Conservation and Game Reserves Regulations, 2001 Wildlife Management Area Regulations (in progress)	

Sector	Primary agency	Title and date of document	Purpose
		Game Ranching Regulations (in progress)	
	Ministry of Agriculture	Community-Based Natural Resources Management Policy (enacted in 2007) ²⁶	
Fisheries	Ministry of Agriculture	Fish Protection Act, 1975	Provides for the regulation, control, protection and improvement of fish and fishing.
		Fish Protection Regulations, 2008	Includes demarcation of fishing seasons, quotas and enforcement.
Tourism	Ministry of Investment, Trade and Industry	Tourism Act, 1992 (and amendments) and Tourism Regulations, 1996	Provides for the development of the tourism industry in Botswana.
		Botswana Tourism Organisation Act, 2009	
Health	Ministry of Health and Wellness	Public Health Act, 1981	Provides for the compulsory notification of certain diseases, preventing the introduction of diseases into the country, advertising and publicising venereal diseases, regulating sanitation and housing, protecting food stuffs and water supplies, regulating the use of cemeteries, and the general provision of public health (Chapter 63:01).
Planning and zoning	Ministry of Lands and Housing Department of Town and Regional Planning	Town and Country Planning Act, 1977 (under revision)	Provides for the orderly development of rural and urban land and gives permission for development (Chapter 32:09).
		Tribal Land Act, 1970, and Tribal Land (Amendment) Act, 1993 Tribal Grazing Land Policy, 1975	Allows for the determination of land use zones. Land Boards may determine management plans for the use and development of these zones.
Mining mineral resources and energy	Ministry of Minerals, Energy and Water Resources: Department of Mines	Mines, Quarries, Works and Machinery Act, 1978	Provides for the safety, health and welfare of persons engaged in prospecting, mining, quarrying operations and provides for the inspection of mines (Chapter 44:02). Includes sections on slimes dams, fuel and oil spills, and effluent water.
		Mines and Minerals Act, 1999 Mines and Minerals Amendment Act, 2005 (both under revision)	Provides for the exploration for and development of mineral resources.
	Department of Energy Botswana Energy Regulatory Authority	Botswana Energy Regulatory Act of 2016	The Botswana Energy Regulatory Act is intended to regulate the energy sector including persons or entities that supply fuel to generators of electricity
Land	Ministry of Lands and Housing	State Land Act, 1966, and Tribal Land Act, 1970, revised in 1993	Provides for settlement, land allocation, land management and land use.
		Land Control Act, 1975	Controls transactions in agricultural land (Chapter 32:11).

²⁶ Presentation on progress on the implementation of the Botswana National Biodiversity Strategy and Action Plan, www.cbd.int

Sector	Primary agency	Title and date of document	Purpose
Agriculture	Ministry of Agriculture	National Policy for Agricultural Development, 1991 (under revision)	
		Agricultural Resources Conservation Act, 1974 (will be repealed when the Forest and Range Resources Act is promulgated)	Promotes agricultural development and the conservation of Botswana's agricultural resources.
		Noxious Weeds Act, 1916	Provides for the eradication and destruction of noxious weeds (Chapter 35:04).
		Plant Diseases and Pests Act, 1959	Prevents the introduction and spread of plant disease and plant pests (Chapter 35:02).
		Fencing Act, 1962	Provides for the construction of fences dividing farms and for apportionment of the cost (Chapter 33:03).
		Diseases of Animals Act, 1977	Prevents and controls animal diseases, regulates movement of animals into and within the country, and provides for quarantine (Chapter 37:01).
		Agrochemicals Act, 1999, and Regulations, 2003	Provides for the registration and licensing of agrochemicals, to control their importation, manufacture, distribution, use and disposal, and to limit pollution to the environment or harm to humans, plants or animals.
Archaeological, historical and cultural	Department of National Museums and Monuments	National Monuments and Relics Act, 2001	Provides for the protection, preservation and declaration of artefacts, monuments and heritage areas, defines the need for archaeological impact assessment and EIA (monuments include trees >150 years, e.g. baobabs).
Labour employment and occupational health	Ministry of Labour and Home Affairs	Employment Act of 1982 (as amended)	Make comprehensive provision for employment and to provide for related matters.

Appendix 4-1: List of activities, locations and thresholds for which an environmental impact statement is required (Schedule 1)

1. Environmentally sensitive areas:

Any development in national parks, game reserves, wildlife management areas, wetlands, within 1 kilometre of open surface water, flood plains, important breeding areas for fauna, within 2 kilometres of important archaeological, historical, religious or cultural sites, areas protected under legislation, hilly areas and areas containing rare or endangered flora and fauna.

2. Transboundary projects:

All projects that have transboundary impacts such as fences, bridges, water transfer schemes and power plants and power lines.

3. Extractive and associated industry:

- (a) prospecting and exploration for oil, coal bed methane, and natural gas, heavy metals and radioactive minerals;
- (b) operations for the extraction of pit sand, river sand, gravel and clay;
- (c) mining within a river system or wetland regardless of the size of the mining project;
- (d) exploration of minerals where drilling and blasting is involved;
- (e) exploitation of minerals, including quarrying;
- (f) exploration, extraction and processing of hydrocarbons;
- (g) mineral processing;
- (h) metallurgical and chemical plants associated with mining, including cement and lime kilns manufacturing; and
- (i) foundries.

4. Waste management:

- (a) establishment or expansion of any of the following waste management facilities: incineration plant, recovery or recycling plant, waste disposal facility (such as landfill, dump site, etc);
- (b) radioactive waste storage and disposal facilities;
- (c) all sewer networks (excluding individual connections to main sewer lines) and associated manholes, sewage pumps stations;
- (d) pre-treatment facilities containing hazardous waste;
- (e) establishment of facilities for the storage/treatment/disposal of hazardous waste such as chemicals, (for example, obsolete pesticides or fertilizers), and asbestos or products containing asbestos, electronic equipment, batteries, fluorescent and energy saving bulbs, clinical wastes and other obsolete equipment containing hazardous waste;

(f) facilities for the treatment or processing of waste such as used tyres, used oil, waste water or polluted ground water.

5. Energy industry:

- (a) the construction of facilities for electricity generation;
- (b) the construction of radioactive energy facilities;
- (c) the construction of-
 - (i) petroleum service stations, consumer installations, commercial and bulk storage petroleum installations including (including storage installations for bio-fuels) with a total capacity of 23,000 litres or more,
 - (ii) liquid petroleum gas (LPG) marketing or commercial installations for distribution to dealers or retailers,
 - (iii) fixed transport structures including LPG pipelines, and
 - (iv) manufacturing or processing plants for the production of energy including coal to liquids, crude oil refining and coal bed methane harvesting;
- (d) commercial plants for the manufacture of charcoal and coal briquettes;
- (e) construction of all commercial or industrial facilities for the generation, transportation and utilisation of natural gas;
- (f) installations for production of biofuels; and
- (g) development of energy crop farms for bio-fuels production covering an area of 100 ha or more.

6. Infrastructure developments

- (a) construction of roads (primary, secondary, tertiary and access);
- (b) fencing of roads;
- (c) construction of fire breaks;
- (d) construction of tunnels;
- (e) construction of bridges over water courses;
- (f) infrastructure developments inside protected areas such as aerodromes, roads, power lines, wildlife watering points and tourist facilities;
- (g) construction of dams, levees, barrages, or weirs affecting the flow of river systems;
- (h) construction of well-fields where abstraction of water will be 22.27 m³ or more per second/ borehole per day;
- (i) intention recharging of an aquifer with any waste water;
- (j) construction of canals, channels, river diversions or water transfer schemes between catchments;
- (k) development of flood control schemes;
- (l) construction of water pipelines and reticulation networks (excluding individual connections);
- (m) construction of storm water drainage facilities;

- (n) construction of telecommunication cables and networks;
- (o) development of airports and airfields;
- (p) installation of power lines;
- (q) installation of power substations;
- (r) land reclamation works;
- (s) development of industrial estates;
- (t) development of residential estates;
- (u) development of institutional facilities (such as schools, hospitals, etc.);
- (v) development of shopping centres or complexes;
- (w) construction of railway lines;
- (x) plants for the manufacture and assembly of motor vehicles;
- (y) installations for telecommunication, broadcasting and radio transmission;
- (z) establishment of cemeteries and crematoria; and
- (aa) construction of facilities for storage of radioactive materials.

7. Chemical, rubber and plastic industry:

- (a) chemical manufacturing or processing plants;
- (b) oil refining plants;
- (c) plants for the manufacturing or processing of plastic and rubber;
- (d) fertilizer and pesticide manufacturing or processing plants;
- (e) large scale application of new pesticides and fertilizers introduced in the country for the first time;
- (j) facilities for the manufacture of pharmaceutical products;
- (g) storage facilities for hazardous chemicals; and
- (h) facilities for the manufacture of paints and allied products.

8. Food industry:

- (a) milk processing with a production output of 1,000,000 litres or more per month;
- (b) manufacture of dairy juice with a production output of 1,000,000 litres or more per month;
- (c) commercial brewing and malting;
- (d) installations for slaughter of animals with a throughput of 50 animals or more per day; and
- (e) fish processing plant- more than 100 tons a year.

9. Leather and textile industry:

- (a) tanneries; and
- (b) textile manufacturing operations where dyes are to be used.

10. Wood and paper industry:

- (a) pulp and paper mills; and
- (b) wood processing operations or expansion of existing wood processing operations.

11. Firing ranges, manufacture and packing of gunpowder and explosives:

- (a) outdoor firing ranges;
- (b) installations for manufacture of explosives, arms or ammunition; and
- (c) installations for storage explosives and ammunition.

12. Tourist enterprises:

- (a) hospitality facilities with 50 guest rooms or more; and
- (b) hospitality facility in environmentally sensitive areas, including but not limited to campsites, lodges and hotels.

13. Recreation related infrastructure:

- (a) sports complexes;
- (b) golf courses;
- (c) establishment of routes or tracks for outdoor racing of motor powered vehicles such as motorcars, trucks and motorcycles; and
- (d) amusement parks.

14. Agricultural projects:

- (a) land developments for the purpose of field crops in an area of 100 hectares or more;
- (b) large scale dairy farms with stock rate of 100 or more cows;
- (c) large scale feedlots with stock rate of 250 or more cattle;
- (d) large scale horticulture projects in an area measuring 10 hectares or more;
- (e) large scale ostrich farms with stock rate of 100 birds or more;
- (f) large scale pig farms with stock rate of 50 sow units;
- (g) large scale pig farms of 50 piglets or more for weaner scheme;
- (h) large scale crocodile farming production systems with a total pond capacity of 400m³ or more where there is any direct discharge from the production system to the environment;
- (i) establishment of game or livestock farm or ranch in an area measuring 3,600 hectares or more;
- (j) large scale poultry farms with stock rate of 20,000 birds or more;
- (k) irrigation of any land with waste water generated through industrial activity or by any water works;
- (l) introduction of new crops, plants and animals, including Genetically Modified Organisms and Living Modified Organisms;
- (m) establishment of fences which are designed to control wildlife and livestock diseases;

- (n) construction of fish-farming production systems with a capacity of 4,000 m³ or more; where there is any direct discharge from the production system to a receiving water body; commercial fish farming venture with an annual production of 20 tonnes or more; and fish farming production systems where exotic species will be used;
- (o) establishment or expansion of logging operations covering an area of greater than 50 hectares;
- (p) establishment of forest plantations, woodlots and tree nurseries of 50 hectares or more; and
- (q) small scale small stock (goats and sheep) farms with stock rate of 1,000 or more.

15. Programmes, policies and plans:

- (a) land use and structural plans;
- (b) settlement plans; and
- (c) national policies, legislation and development strategies and programmes.

16. Other:

- (a) construction of metal processing plants;
- (b) a project likely to affect any area protected by the Laws of Botswana or such other regional or international laws or conventions;
- (c) a project whose implementation will likely cause a public outcry or will result in the displacement of people;
- (d) a project likely to give rise to particular complex or adverse effects whose management is not well understood;
- (e) a project whose implementation will result in substantial use of a natural resource in a way that prevents the use or potential use of the resources for any other purpose; and
- (f) any activity aimed at the modification of atmospheric precipitation.

Acronyms

DEA	Department of Environmental Affairs
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
EIA	environmental impact assessment
EIS	Environmental Impact Statement or Study
LPG	Liquefied petroleum gas
NDP	National Development Plan
SADC	Southern African Development Community
SEA	Strategic Environmental Assessment
WHO	World Health Organisation

Useful contacts

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Department of Environmental Affairs (Head office)	Director	+267-390-2050	+267-390-2051	www.mewt.gov.bw envirobotswana@gov.bw
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Francistown office	District Environmental Coordinator	+267-241-7363	+267-241-7108	
Serowe office	District Environmental Coordinator	+267-463-0174	+267-463-5937	
Ghanzi office	District Environmental Coordinator	+267 659 6101	–+267 659-6038	