

17.7.5. Rivers and inland water



- Overberg District Conservation Plan (CP)**
 - Overberg CP - Wetlands layer
- Overberg CP - CBA map**
 - Formal Protected Areas
 - Critical Biodiversity Areas
 - Ecological Support Areas
 - Overberg CP - Other Natural Areas
- Biodiversity conservation plan boundaries**
 - Overberg Conservation Plan
- Towns and boundaries**
 - Local municipalities - LUDS
 - South African municipal boundaries 2009
- National rivers (NFEPA)**
 - Rivers (NFEPA)
 - 1
 - 5
 - 10
- National protected areas**
 - NPAES focus areas
 - <all other values>
 - Agulhas

Figure 8: The Freshwater Ecosystem Priority Areas (FEPA), conservation areas and National Protected Area Expansion Strategy (NPAES) of the Overstrand LM



The OLM has a number of rivers and wetlands identified as FEPAs (Figure 8) but as may be seen from the figure the protected areas (with the NPAES) tend to run between the rivers without specifically protecting them. This may be a legacy of the farms having been established before the conservation priorities. The SEMF (2013) and the SDF identify the inland waters for special protection as they are important corridors for biodiversity. In addition, the availability of freshwater in the OLM is identified as a possible constraint to future development, with water conservation and demand management being proposed in order to conserve resources. Certain rivers (e.g. the Klein River) are becoming enriched through agricultural runoff and WWTW effluent. This is part of the reason that the Klein Estuary has been classified as Class C when the desired state is Class B.

The SDF states that all rivers (main stems and tributaries) are river corridors and so should have a minimum buffer of 32 meters on each side. Generally speaking, the river tributaries are in better condition than the main stem rivers (SEMF, 2013). With rivers that need to be remediated in order to improve their Present Ecological State PES, it would be more cost effective to target the tributaries for protection. Sub-catchments in high water yield areas should be maintained in as good condition as possible.

The SEMF (2013) recommends that the rivers be managed as linear open space systems with conservation objectives in mind. Two areas of particular importance are the free-flowing Rooi Els River and 'Die Oog' at Stanford. The Rooi Els should be kept pristine, although footpath access should be maintained. The SEMF (2013) states that, as a free-flowing river, there should be no in-stream obstructions.

The country has few free-flowing rivers. A free flowing river is defined as a river without a dam or other obstruction. The Rooi Els is a free flowing river in the OLM that has been identified as a flagship free flowing river and should receive top priority to maintain its free flowing character (NFEPA Atlas, 2011⁶).

17.7.5.1. Recommendations

- The free-flowing integrity of the Rooi Els must be protected, but with pedestrian access.
- The important tributaries of rivers in areas with high runoff (the 'water factories') are given some form of protection to prevent further deterioration. These need to be identified and prioritized. One basis for prioritization is whether the river falls within one of the Ecological and Evolutionary Process Areas. The following attributes may also provide a basis for this prioritization:
 - Provides an important contribution to the flow of the main stem
 - The water quality is acceptable to good, or may be remediated
 - Not too much alien invasive vegetation in the sub-catchment
 - It may be necessary to create conservancies or some other form of public-private partnership in the selected river valleys to achieve this.
 - This planning might start with the Klein and the Bot as these rivers both have important estuaries.
- The Bot River valley has some critically endangered vegetation types (Mucina and Rutherford map) which need to be considered for conservation.
- In instances where the river valley forms a route between the coast and the mountains, the valley may form or contribute to the open space corridor as planned in the IDF.

⁶ NFEPA Atlas, 2011. *Atlas of freshwater ecosystem priority areas in South Africa: Maps to support sustainable development of water resources.* WRC Report TT 500/11.



- The nutrient enrichment through agricultural runoff and WWTW effluent is countered with the establishment of appropriate ecological infrastructure such as constructed wetlands in places downstream of where the enrichment is occurring. This will provide a polish and should, over time, improve the water quality. In this way it should be possible to bring the Klein Estuary up from a Class C to a Class B.

Table 20: Objectives and targets for the conservation plan

Objective	Target
Rooi Els River – Pedestrian access that will not cause erosion or other degradation	Design, budgeting and application for authorisations to be undertaken in the next financial year with construction / modification to begin the following financial year
<p>Klein river and estuary – improvement of the water quality</p> <ul style="list-style-type: none"> • Stanford WWTW is undergoing construction • Upgrade ecological infrastructure (Riparian buffers, wetlands, etc.) <ul style="list-style-type: none"> – Survey existing riparian ecological infrastructure and plan for rehabilitation or constructed ecological infrastructure as required. – Form partnerships with WfW, WfWet as appropriate and prepare budgets. – Apply for the necessary authorisations. – Begin work on priority areas 	<ul style="list-style-type: none"> • Ensure that the operation of the WWTW is improved once the construction phase is completed • Year 1 - Prioritise areas in better condition that can respond most quickly to rehabilitation • Year 2 – begin work on priority areas
<p>The 'water factories' have been identified</p> <ul style="list-style-type: none"> • Desktop study with ground-truthing as necessary to assess the level of protection that these have. • Start negotiations to improve the level of protection where necessary 	<ul style="list-style-type: none"> • Year 1 • Should start late in year 1
Bot River – endangered vegetation types	Year 1 – understand the level of protection afforded to endangered vegetation types in the Bot River valley and plan for improvement where necessary. Start negotiations with landowners
<p>On-going</p> <p>Where the river valleys form corridors between the coast and the mountains, these should be planned into the linear open space systems</p>	



17.7.6. Estuaries

There are seven estuaries in the OLM.

Table 21: The types and condition of the estuaries in the OLM

Name	Type	Health (NBA assessment ⁷)	Condition (Whitfield & Baliwe, 2013 ⁸)	Current Health category (NBA, 2013 ⁹)
Bot/Kleinmond	Estuarine lake	Fair	Fair	C (B) (SA and CAPE Protection)
Buffels (Oos)	Temporarily closed estuary	Good	Good	B (B)
Klein	Estuarine lake	Good	Fair	C (B) (SA and CAPE Protection)
Onrus	Temporarily closed estuary	Poor	Fair	E (D)
Palmiet	Temporarily closed estuary	Good	Good	C (B) (SA and CAPE Protection)
Rooi Els	Temporarily closed estuary	Good	Good	B (B)
Uilkraals	Temporarily closed estuary	Fair	Good	D (C) (CAPE Protection)

Current Health category as rated in the NBA (2013) is accompanied by the recommended ecological category (in brackets) as well as whether the estuary rates for special protection by national (SA) and/or CAPE programmes.

The estuaries of the Bot/Kleinmond and the Klein are of particular importance as they are the most important nursery areas for fish between the Breede and west of Cape Point. These two estuarine lakes are also important recreation areas.

⁷ <http://bgis.sanbi.org/municipalities/summaries.asp?muni=W/C032>

⁸ Whitfield, A.K. & Baliwe, N.G. 2013. *A century of science in South African estuaries: Bibliography and review of research trends*. SANCOR Occasional Report No. 7: 289 pp.

⁹ Turpie, J.K., Wilson, G. & Van Niekerk, L. 2012. *National Biodiversity Assessment 2011: National Estuary Biodiversity Plan for South Africa*. Anchor Environmental Consultants Report No AEC2012/01, Cape Town. Report produced for the Council for Scientific and Industrial Research and the South African National Biodiversity Institute.



The Bot and the Uilkraals estuaries are both important bird habitats. The Bot is potentially a Ramsar site. The Uilkraals estuary is in a D class as the flow has been reduced as a result of the Kraaibosch Dam upstream.

17.7.6.1. Recommendations

- Plan to improve the class of both the Bot and the Klein from C to B. This is not a quick job, but the estuaries are valuable from the fish recruitment and recreational points of view.
- Consider listing the Bot as a Ramsar site. The Bot River and Estuary need to be managed with the principle of conservation of both the terrestrial and aquatic systems in mind. From the aquatic aspect, the flow and water quality of important tributaries should be managed. From the terrestrial aspect, landowners need to be aware of endangered vegetation types on the land and to protect these.
- Residences adjacent to the Onrus estuary that is not connected to the waterborne sewage system should be targeted for future connection to the system, as the seepage from the septic tank outlets reaches the river and impacts on the quality, particularly the pathogen levels, and the safety of bathers. The situation becomes most acute over the Christmas period with the influx of tourists at a time of low flow in the river.

Table 22: Recommendations for Ecological Services

Objective	Target
<p>Klein River and estuary – improvement of the water quality.</p> <ul style="list-style-type: none"> • Stanford WWTW is undergoing construction • Upgrade ecological infrastructure (Riparian buffers, wetlands, etc.) • Survey existing riparian ecological infrastructure and plan for rehabilitation or constructed ecological infrastructure as required. Form partnerships with WfW, WfWet as appropriate and prepare budgets. Apply for the necessary authorisations. • Begin work on priority areas 	<ul style="list-style-type: none"> • Ensure that the operation of the WWTW is improved once the construction phase is completed. • Year 1 - Prioritise areas in better condition that will respond most quickly to rehabilitation and apply for authorisations. • Year 2 – begin work on priority areas
<p>Work with the appropriate department in the OLM to design and upgrade the treatment of sewage infrastructure for the residences adjacent to the Onrus estuary.</p>	<ul style="list-style-type: none"> • Year 1 – Obtain commitment from the OLM, budget for the design and installation of the infrastructure. • Year 2 – design and begin construction. Construction possibly should be undertaken at the low tourist season, so may need to go into year 3.
<p>Consider listing the Bot River estuary as a Ramsar site – work with the country representative to see how the Bot River fits the Ramsar profile.</p>	<p>Start in year 2, but is likely to run into year 3.</p>
<p>Identification of the specific management authority between OLM and Cape Nature is in process since a large portion of the catchment area of the Palmietriver falls within the Kogeborg Biosphere Reserve.</p>	<p>The EMP process for the Palmiet River should be completed by the relevant authority.</p>



17.7.7. Open space system

The public open spaces of the OLM comprise a complex of different types of management. One identified need is the necessity to preserve the open space connection between the coast and the mountains in the towns of the OLM. This may take the form of walking of mountain bike trails, golf courses, or other open spaces. In addition, here are some areas of specific interest such as Hoy's Koppie in Hermanus and 'Die Oog' in Stanford which form part of the open space system and that need to be conserved for their heritage value. Stanford provides a sensitive environment with high amenity values. Another open space with high amenity value is the coastal path at Hermanus. This is well used and gives access to a substantial length of rocky coastline with some beach area. The rocky areas are home to black oystercatchers, listed as 'near threatened' in the IUCN Red List. The Vermont Salt Pan is another area with a high amenity value. One of its attributes is that it supports birds, including flamingos.

The dune systems along the coast need to be protected. Areas of specific importance are those towards the west of the OLM, particularly between Rooi Els and Betty's Bay. These dune systems and beaches need to be managed on a sustainable basis, with appropriate amenities where these are required.

The correct setback should be observed for all developments along the coast and estuaries. In addition, developments on areas designated for the NPAES (), for instance inland from the Walker Bay Nature Reserve, should be carefully controlled so that they remain available for the establishment of conservation areas if required.

The interface between urban development and the natural areas needs to be carefully planned, especially the development against the mountains and against the coast.

Open space systems provide the opportunity to conserve ecosystems that are not in formal conservation areas. They also provide for biodiversity corridors and should, as far as possible, be designed to fulfil these dual roles. Where appropriate they should be protected from urbanization. This is particularly important for areas identified for the National Protected Areas Expansion Strategy (NPAES, Figures 2A and 4). The urban edge needs to be clearly defined in each population centre to prevent urban sprawl. Urban densification should be done in such a way as to avoid impacting on the sense of place. Of importance in this respect is the coastal road from Rooi Els eastwards through the OLM (the R44 and R43). Development along the road needs to be controlled in order to preserve the scenic nature of the drive.

17.7.7.1. Recommendations

- Coastal areas
 - The sensitive dune systems between Rooi Els and Betty's Bay need to be protected from developmental impacts. The integrity of the stabilizing vegetation needs to be preserved.
- River Valleys
 - Pedestrian access with interpretive signs needs to be sensitively developed for the Rooi Els River, estuary and environment. The importance of maintaining free-flowing rivers should be stressed in the signage.
 - The Bot River and estuary form a focal point in the river systems. The linear open space of the river system could be developed into a tourist route.



- Nature reserves
 - The formally protected areas are proclaimed under several different pieces of legislation. To assist with managing their usage by visitors it would help if there was a cohesive management system covering the different areas. In this way it will be easier for both the people using the reserves and the staff patrolling them to comply with the management requirements.
 - Betty's Bay. There is a range of features which may be connected through open space development. These include in the east, the Harold Porter Botanical Gardens and the Dawidskraal area with the Vlei system towards the west and the amenities at the Stoney Point penguin colony on the coast.
- Open space systems within urban areas
 - In addition to managing the open space system with the security of users and conservation of biodiversity in mind, areas of historic or archaeological interest should be integrated into the systems. Specific examples are, for example, Malkopsvlei in Betty's Bay, Hoy's Koppie and other features of interest in Hermanus and Die Oog in Stanford. The Vermont Salt Pan may also be considered in this category.
- The coast road
 - The R44 (west of the Bot River) and the R43 (east of the Bot River) should be managed as scenic drives. This entails restricting development along the roads so that road users may enjoy the natural environment.
- Rocky shores
 - Manage the rocky shores for an appropriate interface between the coast and the urban development. For areas likely to be subjected to heavy tourist pressure, such as the whale-viewing facility at Die Kelders, there should be public amenities and public access needs to be restricted to areas where the environment will not be damaged through excessive pressures.

Table 23: Recommendations for open spaces

Objective	Target
Betty's Bay – the development of pedestrian and / or cycle tracks between the Harold Porter Botanical Gardens, the Dawidskraal area, the vlei system and the amenities at the Stoney Point Penguin Colony	Year 1 – plan, obtain authorisations as necessary and budget Year 2 – implement the plan
Coastal dune systems in the West of the OLM need to be protected from development impacts. In addition, the vegetation stabilising the dunes needs to be preserved from destruction	Year 1 – assess the state of protection of the dune systems in the Pringle Bay – Betty's Bay area and, where necessary, design interventions, apply for authorisations and budget interventions as required
Rooi Els River – develop as a public open space system with signage explaining the importance of the river	Design, budgeting and application for authorisations to be undertaken in the next financial year with construction / modification to begin the following financial year



Objective	Target
<p>Conduct an audit of the interfaces between the urban areas with the mountains and the coast</p>	<p>Beginning with Hermanus in the next financial year, plan to have this audit completed by the end of year 2</p> <p>Where an interface needs attention, plan and budget for the intervention</p>
<p>The open space systems in each of the towns between Betty's Bay and Hermanus should cater for access between the coast and the mountains. This should form part of the strategy for adapting to climate change projections</p>	<p>Year 2 – Begin planning, with Hermanus being the top priority</p> <p>Year 3 – continue planning as necessary and begin implementation in Hermanus</p>
<p>On-going –</p> <p>Nature reserves – continue with on-going negotiations to bring the nature reserves in the OLM together under a common form of management</p> <p>Plan open space systems to include areas of heritage and historical importance as well as for biodiversity conservation</p> <p>Manage the R43 and the R44 as scenic drives through the control of development along the roads</p>	

Most of the recommendations listed under this section will be addressed through the GIS overlay zone process. These will include environmental, heritage and scenic drive overlays.

17.7.8. Threats to the environment

17.7.8.1. Climate change

Climate change is the longer-term overarching threat. This will impact on the availability of surface water, the future distribution of vegetation types and the invasiveness of alien vegetation. The appropriate response of the OLM to the projected changes is to develop adaptive (coping) strategies. Those which will be immediately applicable are outlined below.

17.7.8.2. Alien invasive vegetation

The phenology of certain plants enables them to take advantage of certain conditions or changes in conditions more effectively than other plants, giving them the potential to outcompete plants with a more conservative phenology. Thus they become invasive. The situation is exacerbated when the plant is removed from its natural environment with the pests and diseases that keep its growth in check.

Alien invasive vegetation is a threat from two perspectives. Firstly, it grows more aggressively than the indigenous vegetation and so will outcompete the indigenous plants, eventually replacing them. Secondly, alien invasives have been shown to evapo-transpire more water than indigenous vegetation. With the climate change projected decrease in rainfall, allowing alien invasive vegetation to get a foothold in natural areas is likely to cause water supply problems in the future.



17.7.8.3. The future distribution of vegetation types

The projected changes in climate are expected to alter the distribution pattern of vegetation (Midgley et al, 2002¹⁰). The planning of open space and other developments needs to be sensitive to the likelihood of vegetation needing to migrate with the changing conditions. This adds importance to the requirement repeatedly articulated in the Integrated Spatial Development and Environmental Framework that the open spaces need to effectively connect the coast and the mountains.

17.7.8.4. The increasing urban footprint

The on-going in-migration of people combined with the limited space for further urban expansion is a situation which needs careful management if it is not to impact negatively on the natural environment of the OLM.

Table 24: Recommendations about threats to the environment

Objective	Target
<p>Prepare adaptation strategies for climate change projections. This means the preparation of a strategy. Lead may be taken from strategies already developed for, e.g., Cape Town</p> <p>From the conservation point of view, aspects to consider are the response of the flora and fauna to the climate change projections (the needs of baboons may be a particular case in point), the likely increase in aggressiveness of alien invasive vegetation, Likely changes in the pattern of fire in the fire-prone fynbos, etc.</p>	<p>The development of the strategy should start in the next financial year</p> <p>While floods are dramatic, droughts are more difficult to deal with and preparation for these events should be in place, as far as possible, before they occur</p>
<p>Alien invasive vegetation – this has implications for the future freshwater provision in the OLM</p>	<p>The clearing of alien vegetation is on-going in the OLM. This should continue as it is important to control alien vegetation</p> <p>Areas may be prioritised by both their impact on biodiversity and their impact on water resources</p>
<p>The increasing urban footprint – in-migration from the East Cape will probably not stop until the East Cape can offer the same economic opportunities as the West Cape. This needs to be addressed from the national level</p> <p>On-going in-migration into the OLM will place increasing demands on the infrastructure and available space for urban growth. As discussed above, the environment is an important part of the SES of the OLM and needs to be protected</p>	<p>Planning for this is in hand in the OLM.</p>

¹⁰ Midgley GF, L Hannah, D Millar, MC Rutherford, and LW Powrie, 2002. *Assessing the vulnerability of species richness to anthropogenic climate change in a biodiversity hotspot. Global Ecology and Biogeography* 11(6) 445-451.



18. Standard operating procedures

18.1. Integrated environmental management

Context: In the context of integrated environmental management (IEM), screening determines whether or not a development proposal requires environmental assessment, and if so, what level of assessment is appropriate. Screening is thus a decision-making process that is initiated during the early stages of the development of a proposal.

Responsibility: The user department must ensure that all planned capital and operational projects adheres to the relevant legal requirements.

Screening will be the responsibility of the Environmental Management Section.

Scope: The following projects must be screened before implementation:

1. Capital projects:

- 1.1. New road infrastructure and upgrading of existing infrastructure
- 1.2. New storm water infrastructure and upgrading of existing infrastructure
- 1.3. New drinking water infrastructure and upgrading of existing infrastructure
- 1.4. New sanitation infrastructure and upgrading of existing infrastructure
- 1.5. New housing projects
- 1.6. Construction activities in nature reserves
- 1.7. Construction activities on the coastline
- 1.8. Incinerators at WWTWs
- 1.9. Installation of storage tanks for hazardous substances
- 1.10. New waste management facilities and upgrading of existing waste management infrastructure
- 1.11. New borrow pits or the utilization of existing borrow pits
- 1.12. Construction activities within water courses, wetlands or within 500m of a wetland or estuary
- 1.13. Removal of indigenous vegetation
- 1.14. Abstraction of water – from surface or ground water
- 1.15. Closure of landfill sites

2. Operational projects

- 2.1. Cleaning up of sewage spills (in order to prevent damage to water resources)
- 2.2. Removal of blockages from sewer pipelines (in order to ascertain whether sewer lines will be opened up in water resources/wetland areas)
- 2.3. Disposal of sewage sludge

Methodology (a): The Environmental Management (EM) Section must screen all projects being submitted for the annual budgeting process as well as the IDP. In terms of emergency procedures as listed above under Operational projects, the EM Section must be informed as soon as the problem has been identified.



18.2. Outcome: The EM Section must advise the relevant department in writing regarding the outcome of the screening assessment Requirements for the storage of pesticides, herbicides, fungicides, rodenticides and adjuvants

These requirements are standards that are incorporated in SANS 10206:2005 (The handling, storage and disposal of pesticides). These requirements give guidance on precautions to be taken when handling and storing pesticides, herbicides, fungicides, rodenticides and adjuvants.

18.2.1. Positioning of storerooms or storage areas

1. The storeroom or storage area must preferably be a separate building and be at least 10 m from where fuel or other flammable materials are stored.
2. If the storeroom or storage area is part of a complex, the storeroom or storage area must be totally sealed off from the rest of the complex. If flammables are stored there, the storeroom or storage area must be built with fire-resistant walls.
3. The storeroom or storage area must be sited away from rivers, dams and boreholes.
4. The storeroom or storage area should be situated where it can be supervised.
5. Ease of access for delivery and dispatch must be kept in mind.
6. The need to approach the building from all sides in case of a fire must be taken into consideration. A clearing of 5 m around the storeroom or storage area must be provided, where possible.

18.2.2. Security

1. The storeroom or storage area must be secured against entry by unauthorised persons and against burglary.
2. Only authorised personnel must have access to and control over the keys and be allowed into the storeroom or storage area.
3. Security lighting is recommended.

18.2.3. Construction

1. The floor must be of a smooth screeded concrete and with a slight slope so that any run-off drains into the reservoir/sump (of a suitable size to receive all toxic effluent).
2. The roof must be leak free, and be insulated in order to maintain the temperature of the storeroom or storage area at a reasonable level.
3. The walls must preferably be of concrete or brick and mortar and be fire-resistant.
4. The doors must preferably be steel doors with an effective locking system.
5. The windows must be adequate to allow enough light into the store to be able to read product labels. If this light is insufficient, it must be supplemented with artificial lighting.
6. The floor area must be bunded to a height of 200 mm, all joints sealed and the door raised 200 mm to accommodate the bunding in order to contain spills and prevent floodwater running into the storeroom or storage area.
7. Vents must be located in the upper and lower walls and in the roof. The lower vents must be above bunding level.
8. The disposal of contaminated water must be in accordance with municipal requirements.



18.2.4. Separation and segregation

1. The storeroom or storage area may only be used for storing pesticides, herbicides, fungicides, rodenticides and adjuvants and, if relevant, packaging materials and equipment used for the application of poisons.
2. Herbicides and all phenoxy compounds must be stored separate from other pesticides.
3. A separate, secure room or lockable cupboard for Group I hazardous substances must be provided. A licence is necessary for keeping these pesticides (listed in the Hazardous Substances Act, 1973, and classified in SANS 10304-1: 2002).
4. Special storage requirements apply to flammable liquids, as laid down in the General Safety Regulations in Government Notice No R. 1031 dated 30 May 1986, promulgated under the Occupational Health and Safety Act, 1993 (Act 85 of 1993). The approval of emergency management services must be obtained.
5. The storeroom or storage area must be equipped with either shelving that is non-absorbent or pallets.
6. A separate bunded facility must be provided for preparation, dilution and mixing operations. Water from this facility must be drained into a separate reservoir/sump.

18.2.5. Reservoir

1. A reservoir/sump of suitable size to receive all toxic effluent must be installed and maintained. The reservoir/sump must not have any natural outlet to a sewerage system, stormwater drains, streams or water sources, and must be at least as impermeable as reinforced concrete.
2. The contents of the reservoir/sump must be emptied by a registered company handling hazardous substances.

18.2.6. Repacking and washing facilities

1. To repack or clean damaged or soiled containers, a separate part of the storeroom or storage area must be provided with a bunded area. The floor must be sloped and drain into the reservoir/sump.
2. For contaminated vehicles and equipment, a bunded wash bay that drains into the reservoir/sump must be provided. This reservoir/sump must be impermeable to rain water.

18.2.7. Signs, notices and labels

18.2.7.1. External signage

1. At each entrance to a storeroom or storage area, one or more full-size primary hazard warning diamond(s), as detailed in SANS 10232-1:2000 (Transport of dangerous goods – Emergency information systems Part 1: Emergency information system for road transport), must be displayed.
2. If more than one type of pesticide set out in SANS 10304-1:2002 (The classification of pesticides) is stored in one area, a full-size multi-load warning diamond must be displayed.

18.2.7.2. Internal signage

1. For each separate storeroom or storage area for poison and/or flammable substances located within a main store, a full-size primary hazard warning diamond, as detailed in SANS 10232-1:2000 must be displayed.
2. Symbolic safety signs that comply with SANS 1186-1:2003 (Symbolic safety signs Part 1: Standard signs and general requirements) must be used as needed in the store to regulate safety on the premises, including the following:
 - No smoking
 - No naked flames



- No fires

18.2.7.3. General signage

1. All safety signs must be relevant and appropriate, bear the skull and crossbones, and be so positioned that they are –
 - clearly visible at all times
 - not subject to misinterpretation
 - not subject to damage during normal operations
 - legible from a distance of 8 m.
2. All signs displayed must be in English and in at least one other official language (the one most commonly used in the area).
3. All employees must be made aware of the meaning of all safety and information signs.

18.2.7.4. Labels

1. All packages and containers must be clearly, indelibly and correctly labelled.
2. The expiry dates on poison containers must be clearly visible.

18.2.7.5. Inventory

An inventory of all containers of pesticides, herbicides, fungicides, rodenticides and adjuvants on the premises must be kept in an area away from the storeroom or storage area. The inventory must be available at all times.

18.2.7.6. Equipment

1. Suitable fire extinguishers, together with vermiculite or sand to absorb leakage, and suitable empty containers, shovels and brooms, must be available and easily accessible in a clearly demarcated area outside the storeroom or storage area.
2. An appropriate number of sets of clean protective equipment must be kept in an easily accessible and clearly demarcated area for use in an emergency.

18.2.7.7. Empty containers

1. Empty containers present a risk to human health and the environment.
2. Empty containers must be immediately rinsed three times. The rinse water must be emptied into the spray can and not into a drain or onto the ground.
3. Empty containers, including used spill kits, must be kept under lock and key until they can be disposed of in a safe manner at a registered hazardous landfill site.
4. Empty containers must not be reused for any purpose, not even for the same product. (Reason: different batch numbers, and if the container was triple-rinsed there could be water in the container which could then contaminate the poison.)
5. To ensure that empty containers are not reused, a number of holes must be punched into the containers to render them useless.

18.2.7.8. Disposal of pesticides, herbicides, fungicides, rodenticides and adjuvants

Surplus pesticides, herbicides, fungicides, rodenticides and adjuvants and empty containers and materials used for the cleaning of spillages and leaks must be disposed of in accordance with SANS 10206:2005 (The handling, storage and disposal of pesticides).



18.2.7.9. Material safety data sheets

1. A material safety data sheet (MSDS) must be on site before poisons can be stored or issued.
2. An MSDS must be available to all users and auditors.
3. Every depot using poisons must have copies of MSDSs on site.

19. References

Maps generated from the BGIS_SANBI online facility unless stated otherwise.

TEEB (2010) The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature: A synthesis of the approach, conclusions and recommendations of TEEB.



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