1

2

Some Thoughts

- Notes and materials
- Interaction and questions
- Structure for the day
- Breaks

3

Notes and Materials

- Appendix A: Schematic on Basic Assessment and Scoping Process
- Appendix B: Appendix 4 of GN R 326 / 2014 Content of an EMPr
- Appendix C: Example of a Basic Method Statement
- Appendix D: Example of a Basic Checklist Based Audit
- Appendix E: SABITA: Design of facilities for storage and handling of bitumen
- Appendix F: SABITA: Confirmation of the classification of bitumen
- Appendix G: SABITA: Interpretation of Reject Asphalt in terms of Waste Act

4

Green Bull

AQUA ECO

5

Course Introduction

- Prepared by AquaEco for SARF
- Overview of the most important concepts around environmental management, both the legal concepts and practical implementation (environmental management tools)
- From global to SA aspects
- From law to site management aspects
- Specific to roads and asphalt

6

Objectives and Outcome of the Course

- To equip the participants with a broad overview of **environmental management.**
- To provide a basic understanding of **environmental law** to the extent that the participants are sensitised to environmental obligations and a framework for reference.
- To heighten the **awareness** of environmental management as an essential component in construction of roads.
- To create a general awareness of environmental management to the extent that the participants understand the role and importance of the **environmental manager**.
- To create an understanding of the environmental **tools** (EIA's, management plans, codes of practice, audits, method statements) and the interpretation thereof.
- To assist the participants to reach a level of environmental management **competence** to allow them to understand most environmental situations.

7

Abbreviations and Acronyms

- AEL — Atmospheric Emissions Licence
- BA — Basic Assessment
- CEMP — Construction Environmental Management Plan
- DAEARD — Department of Agriculture, Environmental Affairs and Rural Development (KwaZulu Natal)
- DEA — Department of Environmental Affairs
- DEDTEA — Department of Economic Development, Tourism and Environmental Affairs (Free State)
- DEO — Designated Environmental Officer
- DWA — Department of Water Affairs
- EA — Environmental Assessment
- EAP — Environmental Assessment Practitioner
- ECO — Environmental Control Officer
- EIA — Environmental Impact Assessment
- EIR — Environmental Impact Report
- EM — Environmental Manager
- EMC — Environmental Monitoring Committee
- EMP — Environmental Management Plan
- I&AP — Interested and Affected Party
- NEMA — National Environmental Management Act
- NEM: AQA — National Environmental Management: Air Quality Act
- NEM: WA — National Environmental Management: Waste Act
- NWA — National Water Act
- OEMP — Operational Environmental Management Plan
- PAEL — Provisional Atmospheric Emissions Licence
- POS — Plan of Study
- ROD — Record of Decision
- SAHRA — South African Heritage Resource Agency

8

Introduction to Environmental Management

- Environment: used in "natural" sense.
- Sum of all living and non-living things that surround us. - both biotic (living) and abiotic (non-living).
- Continuous and changing.

9

- Management - controlling things or people.
- Action in which control is taken of situations or matters.
- Towards bringing about improvements, better functionality, more knowledge, skills, efficiencies and more.

10

- Combining "environmental" and "management".
- Control is taken over all biotic and abiotic.
- "Control" includes allowing the environment to function naturally.
- On a global scale this includes:
  - To reduce world consumption of fossil fuels.
  - To reduce and clean up all sorts of pollution.
  - Emphasis on clean, alternative energy sources that have low carbon emissions.
  - Sustainable use of water, land, and other resources.
  - Conservation of species.
  - Protection of biodiversity.

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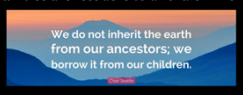
- "Sustainable" environmental management: conserving a balance to avoid depletion and degradation.
- Human needs are met without diminishing the ability of other people, wild species (the environment), or future generations to survive.
- Biodiversity is the range (richness) or variation of plant and animal life in the environment and the distribution (evenness) thereof.
- The term conservation.
- The term integrated.

12

Understanding Environmental Services

- Food
- Electricity
- Fuel
- The air we breath
- The water we drinks

These are environmental assets that act in accordance with supply and demand.
Impoverished communities are less able to afford environmental services.



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Global to Local Scale

- Changing Environment
- Increased population
- Pollution
- Pressure on resources (water)
- Extinction of species
- Desertification
- Petroleum reserves running out
- Global warming

- Other indirect consequences (Economy, Conflict etc.)

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Measurement of Degradation

- Condition of the atmosphere and climate
- Biodiversity and natural heritage conservation
- Level of environmental management
- Human well-being
- Inland water
- Land use types
- Condition of the marine environment, coast and estuaries
- Degree of waste management

worldometers
world statistics updated in real time

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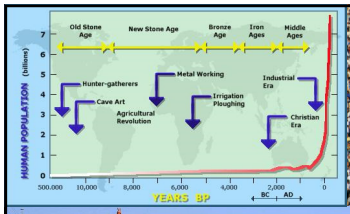

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Global to Local Scale

- South African State of the Environment Reports (2019)
- Indicates that SA is also deteriorating

- Major problem areas include
  - increasing pollution and declining air quality that are harming people's health
  - natural resources being exploited in an unsustainable way
  - declining water quality and aquatic ecosystem health
  - continuing land degradation
  - the overexploitation and collapse of commercial and recreational fish species

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Global to Local Scale

- Large part of the population directly dependant on environmental services.

- Four "major environmental priorities" that require "urgent intervention":
  - the availability and quality of water;
  - climate change;
  - human vulnerability in extremely high levels of poverty and inequality; and
  - the loss of biodiversity and ecosystem functioning.

- Four "fundamental cross-cutting issues as key leverage points for change".
  - improve implementation and enforcement significantly;
  - increase and consistently monitor information and make it accessible;
  - build the capacity of local government; and
  - shoulder our joint responsibility to make development more sustainable.

We do not inherit the earth from our ancestors, we borrow it from our children.
- Native American proverb

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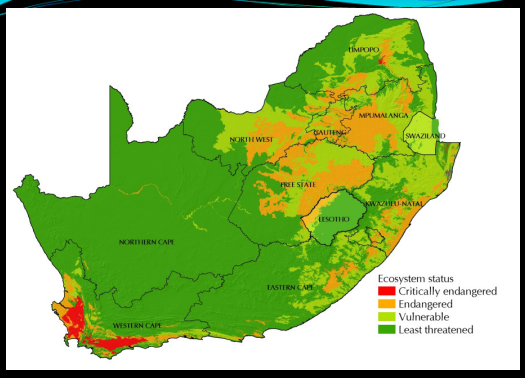

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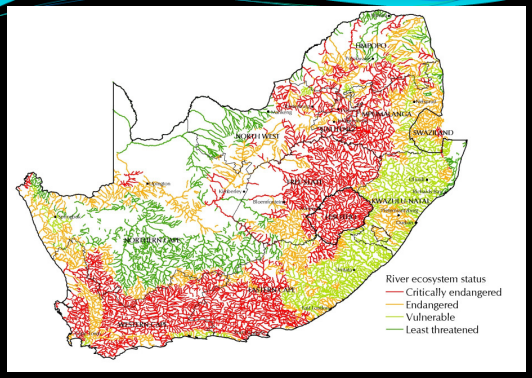

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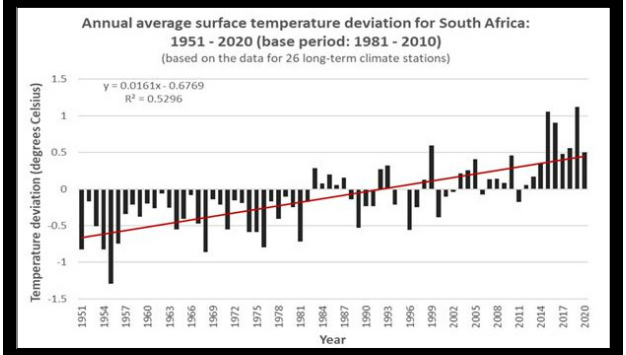

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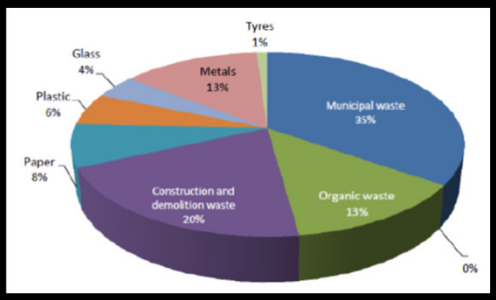
South African Environmental Outlook Report:

- Strengthening implementation and enforcement.
- Mainstreaming the environment.
- Building capacity.
- Environmental information for decision-making.

22

59 million tons of waste / annum (2011)



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Province	kg/capita/annum	Waste generated as % of Total waste
Western Cape	675	20
Eastern Cape	113	4
Northern Cape	547	3
Free State	199	3
KwaZulu Natal	158	9
North West	68	1
Gauteng	761	45
Mpumalanga	518	10
Limpopo	103	3

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So what is climate change?

- On of the most prominent environment issues
- Debates exist, but the temperature IS rising

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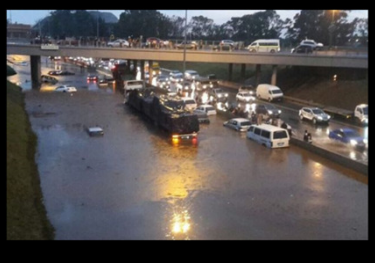
So what is climate change?

- SA depends on coal derived energy
- We are in a vulnerable are for climate change



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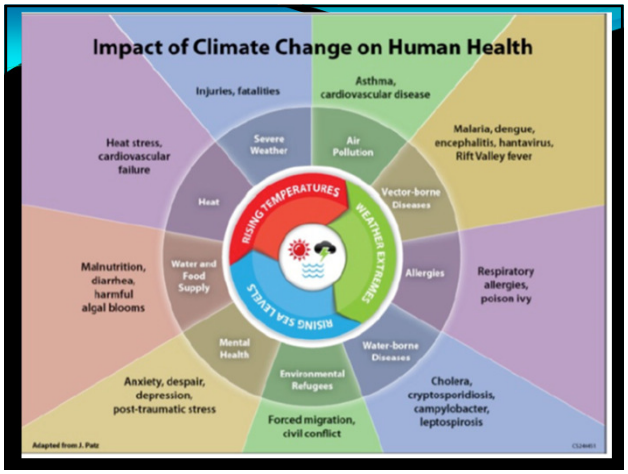

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Why look after the environment

- It is the law – its human rights – its in the Constitution
- Resource economics – understanding that everything that keeps us alive costs money
- It saves money because environmental services cost money
- It keeps us healthy
- It creates business and employment
- It leaves a legacy and resources for our children
- A clean environment reflects who you are
- It creates an orderly society
- It prevents natural disasters

GREEN TO GOLD

29

Environmental Legislation Constitution

- Fundamental right.
- The South African Constitution (1996) provides for the right of each person (and for future generations):
  - to an environment that is not harmful to their health or well-being; and
  - to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that :
    - prevent pollution and ecological degradation;
    - promote conservation; and
    - secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

30

Environmental Legislation NEMA

- Primary environmental legislation.
- NEMA protects the rights of each South African.
- The state must respect, protect, promote, and fulfil these rights. Amongst others, this means that all of Government's actions must be in accordance with this right, including the laws it makes and every action it takes.

31

- Environmental management must put **people and their needs** at the forefront, and must serve their interests fairly.
- Development must be **socially, environmentally and economically sustainable**. This means that the following things must be considered before there is development:
  - **Disturbance of eco-systems and loss of biodiversity.**
  - **Pollution and degradation of the environment.**
  - Disturbance of landscapes and sites where the nation's **cultural heritage** is found.
  - production of waste must be minimised or avoided;
  - Non-renewable resources must be used responsibly.
  - The **precautionary principle** must be applied.
  - Negative impacts must be anticipated and prevented and if they can't be prevented they must be minimized or remedied.

32

- Environmental management must be **integrated**. The **best practical** environmental option must be pursued.
- Environmental justice must be pursued so that there is not unfair discrimination in the way that negative environmental impacts are distributed.
- There should be equitable access to environmental resources, benefits and services to meet basic human needs. Special measures may be taken to ensure access for persons disadvantaged by unfair discrimination.
- Responsibility for environmental health and safety of any policy, programme or project must continue throughout the life cycle of a project.
- **Public participation** in environmental decision making must be promoted. The participation of vulnerable and disadvantaged groups must be ensured.

33

- Decisions must take into account the interests, needs and values of all interested and affected parties. This includes recognizing all forms of knowledge including traditional and ordinary knowledge.
- Community well-being and empowerment must be promoted through environmental education.
- The **social, economic and environmental impacts** of the activities must be assessed.
- **The right of workers to refuse to do work that is harmful to human health or the environment and to be informed of dangers must be respected.**
- Decisions must be taken in an open and transparent manner and access to information provided in accordance with the law.

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- There must be inter-governmental co-ordination and harmonisation of policies and laws.
- Actual or potential conflicts of interest between organs of state must be resolved through conflict resolution procedures.
- Global and international responsibilities relating to the environment must be discharged in the national interest.
- The environment is held in a public trust for the people, and the use of environmental resources must serve the public interest, and be protected as the people's common heritage.
- The polluter must pay for the costs of remedying pollution, environmental degradation and adverse health impacts.
- The vital role of youth and women in environmental management must be recognized and their full participation promoted.
- Sensitive or stressed eco systems must receive special attention in planning which might affect them especially when they are subject to significant resource usage and development pressure.

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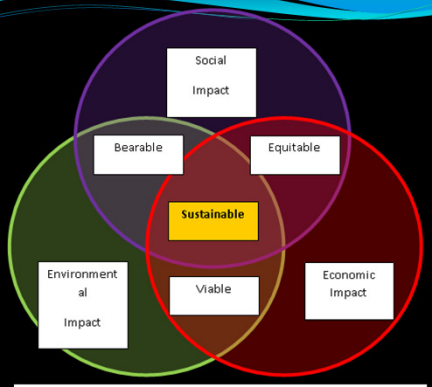

The triple bottom line of sustainability

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Environmental Legislation NEMA

- NEMA determines the need for **environmental assessment**
- NEMA protects **workers** that refuse to participate in activities that affect the environment
- NEMA protects **whistle blowers**
- NEMA sets means of **conflict resolution**
- NEMA provides for **legal** resolve
- NEMA guarantees you access to government **information** about the state of the environment, actual or future threats and hazardous waste if your request is reasonable.

37

Environmental Legislation NEMA

- NEMA allows any person to take legal action if:
  - Someone, including government has broken an environmental law.
  - Government has not obeyed a Principle of NEMA in an action that may significantly affect the environment.
  - Government has given permission for an activity or development that significantly affects the environment without properly checking how it could affect the environment, the society and our cultural heritage.
  - Someone, including government has caused significant pollution or degradation of the environment.
  - You have been punished, disciplined or threatened for refusing to do work that might harm the environment or for blowing the whistle (i.e. giving information) about how someone is harming the environment.
  - A major accident that threatens the public has happened and there has not been a proper report about it or a clean-up.
  - The state has not prosecuted a person for breaking an environmental law, and you believe that he/she might be guilty.

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Environmental Legislation National Environmental Management: Air Quality Act

- NEM:AQA has repealed old Atmospheric Pollution Prevention Act
- Act provides for an authorisation process
- Regulations related to the Act provides for minimum air quality standards and monitoring methods.

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Environmental Legislation National Environmental Management: Air Quality Act

- Government Notice 893 of 22 November 2013 – identifies activities requiring an emissions licence.
- Asphalt production is trigged given that it qualifies as a Macadam process preparation.

SAAQIS
SOUTH AFRICAN AIR QUALITY INFORMATION SYSTEM

40

Government Notice 893 of 22 Nov 2013

Subcategory 2.4: Storage and Handling of Petroleum Products

•Greater than 14 kPa – leak detection and repair programme approved by licencing authority.
•Storage greater than 1 000 cubic meters:

True vapour pressure of contents at product storage temperature	Type of tank or vessel
Type 1: Up to 14 kPa	Fixed-roof tank vented to atmosphere, or as per Type 2 and 3
Type 2: Above 14 kPa and up to 91 kPa with a throughput of less than 50'000 m³ per annum	Fixed-roof tank with Pressure Vacuum Vents fitted as a minimum, to prevent "breathing" losses, or as per Type 3
Type 3: Above 14 kPa and up to 91 kPa with a throughput greater than 50'000 m³ per annum	a) External floating-roof tank with primary rim seal and secondary rim seal for tank with a diameter greater than 20m, or b) fixed-roof tank with internal floating deck / roof fitted with primary seal, or c) fixed-roof tank with vapour recovery system.
Type 4: Above 91 kPa	Pressure vessel

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•Control of Total Volatile Organic Compounds (TVOC) in loading or offloading in units of greater than 14 kPa and with a throughput of greater than 50 000 m³ per annum by means of vapour recovery/destruction unit :

Description:	Vapour Recovery Units		
Application:	All loading/ offloading facilities with a throughput greater than 50 000 m³		
Substance or mixture of substances		**Plant status**	**mg/Nm³ under normal conditions of 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Total volatile organic compounds from vapour recovery/ destruction units using thermal treatment.	N/A	New	150
		Existing	150
Total volatile organic compounds from vapour recovery/ destruction units using non-thermal treatment.	N/A	New	40 000
		Existing	40 000

•Where throughput is less than 50 000 m³ bottom loading must be used with a venting pipe connected to a vapour balancing g system or a VOC recovery system with 95% efficiency.

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Government Notice 893 of 22 Nov 2013
Subcategory 5.10: Macadam Preparation

Description:	The production mixtures of aggregate and tar or bitumen to produce road surfacing in permanent facilities and mobile plants.		
Application:	All plants.		
Substance or mixture of substances		**Plant status**	**mg/Nm³ under normal conditions of 273 Kelvin and 101.3 kPa.**
Common name	**Chemical symbol**		
Particulate matter	N/A	New	50
		Existing	120
Sulphur dioxide	SO_2	New	1000
		Existing	1000
Total volatile organic compounds from vapour recovery/ destruction units (Thermal treatment).	N/A	New	150
		Existing	150

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Government Notice 201 of March 2014
Temporary Asphalt Plants as Controlled Emitters

- 24 months and contract specific
- Still obliged to monitor and report

Description	The production mixtures of aggregate and tar or bitumen to produce road surfacing in temporary asphalt plants		
Application	All temporary asphalt plants		
Substance or mixture of substances		**Plant status**	**Limit value (dry mg/ Nm³ at 273K and 101.3kPa**
Common name	**Chemical/ Commonly-used symbol**		
Particulate matter	N/A	New	50
		Existing	120
Sulphur dioxide	SO_2	New	1000
		Existing	1000
Total volatile organic compounds from vapour recovery or thermal destruction units.	N/A	New	150
		Existing	150

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Government Notice 827 of 01 Nov 2013
National Dust Control Regulations

- Smaller than 1mm but able to settle

Restriction Areas	Dustfall rate (D) (mg/m²/day, 30-days average)	Permitted frequency of exceeding dust fall rate
Residential area	D < 600	Two within a year, not sequential months.
Non-residential area	600 < D < 1200	Two within a year, not sequential months.

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Government Notice 827 of 01 Nov 2013
National Dust Control Regulations

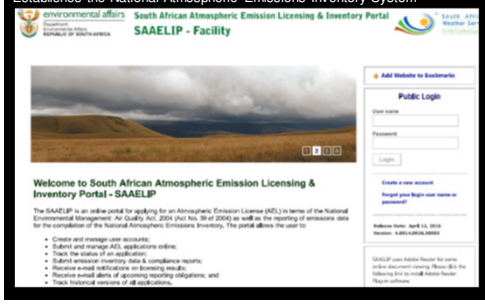
Dust fall monitoring programme:

- Identified monitoring points for ambient and contributed dust.
- Annual monitoring report.
- Dust management programme.

46

Government Notice 283 and 284 of April 2015
National Atmospheric Emissions Reporting Regulations

Establishes the National Atmospheric Emissions Inventory System



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Environmental Legislation
National Environmental Management: Waste Act

- Government Notice 921 of Nov 2013
- Example of activities requiring **Basic Assessment** (not all activities included):
- **Storage of waste**
- The storage of general waste in lagoons.
- **Recycling or recovery of waste**
- The sorting, shredding, grinding, crushing, screening or bailing of general waste at a facility that has an operational area in excess of 1 000 m2.
- The recycling of general waste at a facility that has an operational area in excess of 500m2, excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.
- The recycling of hazardous waste in excess of 500kg but less than 1 ton per day calculated as a monthly average, excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises

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Environmental Legislation
National Environmental Management: Waste Act

- Government Notice 921 of Nov 2013
- Example of activities requiring **Basic Assessment** (not all activities included):

- **Treatment of waste**
- The treatment of general waste using any form of treatment at a facility that has the capacity to process in excess of 10 tons but less than 100 tons.

- **Disposal of waste**
- The disposal of domestic waste generated on premises in areas not serviced by the municipal service where the waste disposed exceeds 500kg per month.

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Environmental Legislation
National Environmental Management: Waste Act

- Government Notice 921 of Nov 2013
- Example of activities requiring **Full Scoping and EIR** (not all activities included):

- **Storage of hazardous waste**
- The storage of hazardous waste in lagoons, excluding storage of effluent, wastewater or sewerage.

- **Reuse, recycling or recovery of waste**
- The reuse or recycling of hazardous waste in excess of 1 ton per day, excluding reuse or recycling that takes place as an integral part of an internal manufacturing process within the same premises.

- **Treatment of waste**
- **Disposal of waste on land**

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Environmental Legislation
National Environmental Management: Waste Act

- Government Notice 921 of Nov 2013
- Example of activities controlled by standards (not all activities included):

- **Storage of waste**
- The storage of general waste at a facility that has the capacity to store in excess of 100m3 of general waste at any one time, excluding the storage of waste in lagoons or temporary storage of such waste.
- The storage of hazardous waste at a facility that has the capacity to store in excess of 80m3 of hazardous waste at any one time, excluding the temporary storage of such waste.
- The storage of waste tyres in a storage area exceeding 500m2.

51

Government Notice 634 of 22 Aug 2013
Waste Classification and Management Regulations

For waste management activities that do not need licencing Stipulated wastes that required classifications and hazardous wastes that require a waste manifest.
(Annexure 1: (2)(a)(vii) "*building and demolition waste not containing hazardous waste or hazardous chemicals*", to be considered together with classification of bitumen, means that Reject Asphalt Product (RAP) does not require licencing or classification. This is open to interpretation.

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Environmental Legislation
National Water Act

In terms of Section 21 of the NWA a water use means any one of the following:

- (a) taking water from a water resource (abstraction)
- (b) storing water
- (c) impeding or diverting the flow of water in a watercourse
- (d) engaging in a stream flow reduction activity (for example commercial forestry)
- (e) engaging in a controlled activity (activities which impact detrimentally on a water resource, for example irrigating land with water containing waste)
- (f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer or other conduit
- (g) deposing of waste in a manner which may detrimentally impact on a water resource
- (h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generating process
- (i) altering the beds, banks, course or characterises of a watercourse (changing the physical structure, obstructing or diverting the flow of water in a watercourse)
- (j) removing, discharging or disposing of water found underground for the continuation of an activity or for the safety of persons
- (k) using water for recreational purposes

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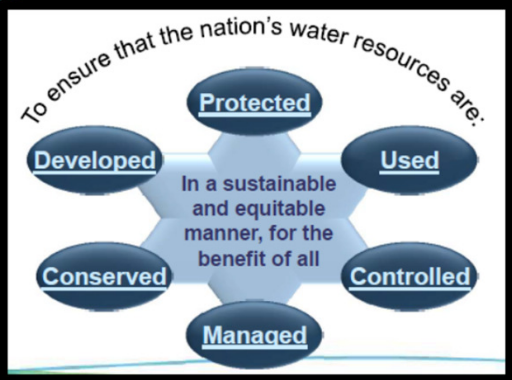

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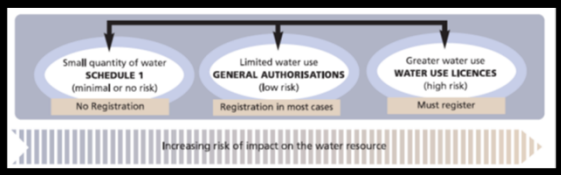

Links to relevant documentation

- https://www.dws.gov.za/iwqs/nwa/tmp_Schedule_1.html
- http://www.energy.gov.za/files/policies/act_nationalwater36of1998.pdf
- GN538 - https://cer.org.za/wp-content/uploads/2010/05/National-Water-Act-1998-36-1998-Revision-of-General-Authorisation-for-the-taking-20160902-GGN-40243-00538.pdf
- GN509 - https://cer.org.za/wp-content/uploads/2010/05/General-Authorisation.pdf
- GN665 - https://cer.org.za/wp-content/uploads/2010/05/General-Authorisation.pdf
- http://www.energy.gov.za/files/policies/act_nationalwater36of1998.pdf

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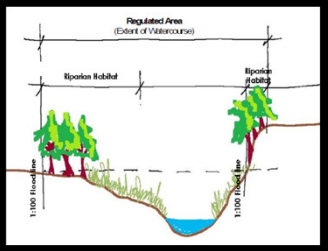
Extent **and** 'Regulated Area' =
Outer edge of the Riparian habitat / 1:100 flood line (whichever is greatest)



'Regulated Area' =
Within 500 m radius from the
boundary (extent) of a wetland

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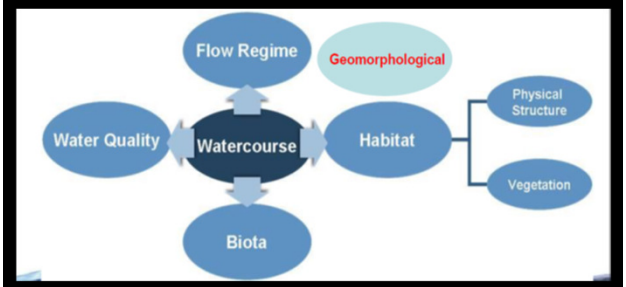

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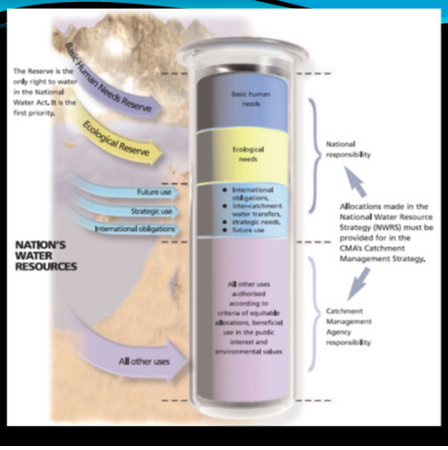

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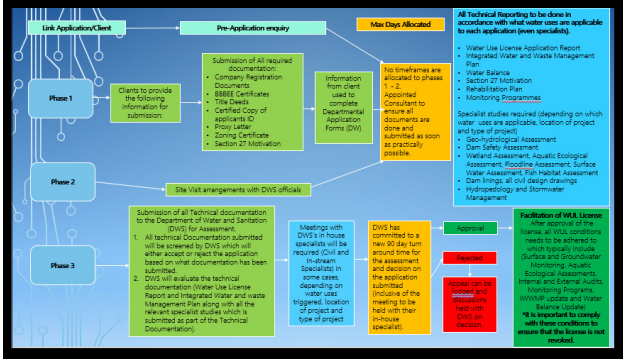
Licensing of Section 21 Water Uses Process Flow Chart



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Environmental Legislation
Mineral and Petroleum Resources Act

MINING PERMIT:

- Mining can be done in a 2-year period (renewable for an effective 3 years thereafter).
- The mining will be done over less than 5 ha in extent.

Application for mining permits are made to regional offices of the Department of Mineral Resources (DMR) and will be issued for a specific mineral if no other permit has been issued for the land and provided the following documents is in order:

- Details of the land and a plan as prescribed by the MPRDA.
- Financial and technical competence in mining as well as for environmental mitigation and rehabilitation.
- Title deeds for the land.
- Details of the mineral and quantity to be removed.
- Identity document and / or business registrations
- An environmental management plan; and
- Details of notifications

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Note that the competency for the environmental aspects of a mining permit now lies with the Department of Environmental Affairs. The need for a Basic Assessment is triggered by a mining permit:

Activity 21 in GN 327 (Listing Notice 1):
Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource including activities for which an exemption has been issued.

Activity 22 in GN 327 (Listing Notice 1):
The decommissioning of any activity requiring -
(i) a closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002); or
(ii) a prospecting right, mining right, mining permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure.

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Environmental Legislation
Mineral and Petroleum Resources Act

MINING RIGHT

- The mining will be done over an extended period (valid for up to 30 years and application for renewal also possible).
- The mining are is bigger than 5 ha in extent.

Application for mining rights are made to regional offices of the Department of Mineral Resources (DMR) and will be issued for a specific mineral if no other right has been issued for the land and provided the following documents is in order:

- Details of the land and a plan as prescribed by the MPRDA.
- A mining work programme
- Technical competence in mining (according to mining works programme) as well as for environmental mitigation and rehabilitation.
- Financing plan.
- Title deeds for the land.
- List of existing mining rights.
- Social and Labour Plan, including BEE information.
- Details of the mineral and quantity to be removed.
- Identity document and / or business registrations
- An Environmental Scoping Report and management plan; and
- Details of notifications

64

Note that the competency for the environmental aspects of a mining right now lies with the Department of Environmental Affairs. The need for a Full Scoping and EIA is triggered by a mining right:

Activity 17 in GN 325 (Listing Notice 2):
Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).

Note that closure is still subject to Activity 22 in GN 327 (Listing Notice 1).

65

Environmental Legislation
Other Legislation

- The National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003).
- The National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004).
- The National Environmental Management: Integrated Coastal Management Act, 2008 (Act 24 of 2008).
- The National Forrest Act, 1998 (Act 84 of 1998).
- Hazardous Substances Act, 1973 (Act 15 of 1973).
- National Veld and Forrest Fire Act, 1998 (Act 101 of 1998).
- Occupational Health and Safety Act, 1993 (Act 85 of 1993).
- The National Heritage Resources Act, 1999 (Act 25 of 1999).
- Provincial and Regional / Local Legislation

66

Environmental Impact Assessment

- Integrate environmental considerations into development planning, thereby promoting sustainable development;
- Ensure that environmental and socio-economic benefits and costs of economic development projects are properly accounted for;
- Ensure that unwarranted negative impacts are avoided or mitigated at an early stage in the planning process;
- Ensure that potential benefits are identified and enhanced;
- Carry out environmental and social evaluations of projects in parallel with analyses of technical and economic feasibility;
- Ensure that decision makers are provided with information on environmental costs and benefits to complement information on technical and economic feasibility at key decision points in the development of the project;
- Ensure that all the interested and affected parties participate in the process;
- Provide a framework to carry out mitigation and monitoring;
- Promote inter-sectoral and intra-sectoral linkages; and
- Conserve the social, historical and cultural values of the people and their communities.

67

Environmental Impact Assessment Definitions

The EIA regulations (as amended in Government Notice 326, 327, 325, 324 .

- **"associated structures, infrastructure and earthworks"**
- **"dangerous goods"**
- **"development"**
- **"expansion"**
- **"indigenous vegetation"**
- **"linear activities"**
- **"phased activities"**
- **"watercourse"**
- **"wetland"**

68

Environmental Impact Assessment When is an EIA Required

- Government Notice R 327 of 2017: Listing Notice 1, which identifies activities subject to a Basic Assessment process.
- Government Notice R 325 of 2017: Listing Notice 2, which identified activities subject to Scoping and an Environmental Impact Assessment process.
- Government Notice R 324 of 2010: Listing Notice 3, which identified activities subject to environmental authorisation (by Basic Assessment as a minimum) due to location.

69

Listing I

Listing Notice	No.	Activity	Threshold	Exclusions
List I: GN 327	1 and 2	Electricity generation from renewable / non-renewables	>10 but < 20 megawatt or >1 ha	
	9	Storm / water transfer infrastructure	>1 000 m and 0.36 ID or 120 l/sec	Road reserves and urban areas
	10	Waste water transfer	>1 000 m and 0.36 ID or 120 l/sec	Road reserves and urban areas
	11	Electrical transmission or distribution	Outside urban >33 and <275 kilovolts In urban >275 kilovolts	
	12	Dams, weirs, structures or infrastructure	> 100 sq. meters	Road reserves, urban areas and harbours
	13	Dams	>50000 cubic	
	14	Storage dangerous goods	>80 but less than 500 cubic	
	15	Develop coastal public property	>50 sq. meters	
	16	Desalination	Produce 100 cubic meters per day	
	19	Move material in a watercourse or the sea	10 cubic meters	
	24	Roads	If route determination was authorised Reserve > 13.5 m or 8 m where no reserve exists	Entire road in urban area
	25	Effluent treatment	>2000 and < 15000 cubic per day	
	27	Clearing	More than 1 ha and < 20 ha	Linear activities
	34	Expansion /changes where emissions licence triggered		
	56	Widening of road	> 6m or lengthening more than 1 km where existing reserve > 13.5 m or 8 m where no reserve exists	Urban areas

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Listing II

Listing Notice	No.	Activity	Threshold	Exclusions
List II: GN 325	1 and 2	Electricity generation	> 20 megawatt	
	3	Nuclear activities		
	4	Storage and handling dangerous goods	> 500 cubic meters	
	5	Processing, beneficiation or refining of gas, oil or petroleum products	With an installed capacity of 50 cubic metres or more per day.	
	6	Process needing emissions licence		
	8	Airports and runways		
	9	Transmission and distribution of electricity	> 275 kilovolts	
	11	Water transfer	> 50000 cubic meters per day	
	12	Railway lines		
	15	Clearing	greater than 20 ha	
	16	Dams	Wall 5 meter or basin > 10 ha	
	27	i. National Road ii. Provincial Road iii. Road with reserve wider than 30 metres Road catering for more than one lane of traffic in both directions.		

71

A New Problem

- Listed Activity 5 in Listing Notice 2 (EIA Regulations)
- Processing 50 cubic meters of petroleum products / day

- If an asphalt plant produces 100 tons per hour
- @ 5 % bitumen (5 tons)
- It need only run for 10 hours to trigger this EIA need

- Listed activities apply to design capacity!!!!

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Listing II

Listing Notice	No.	Activity	Threshold	Exclusions
List II: GN 325	1 and 2	Electricity generation	> 20 megawatt	
	3	Nuclear activities		
	4	Storage and handling dangerous goods	> 500 cubic meters	
	5	Processing, beneficiation or refining of gas, oil or petroleum products	With an installed capacity of 50 cubic metres or more per day.	
	6	Process needing emissions licence		
	8	Airports and runways		
	9	Transmission and distribution of electricity	> 275 kilovolts	
	11	Water transfer	> 50000 cubic meters per day	
	12	Railway lines		
	15	Clearing	greater than 20 ha	
	16	Dams	Wall 5 meter or basin > 10 ha	
	27	i. National Road ii. Provincial Road iii. Road with reserve wider than 30 metres Road catering for more than one lane of traffic in both directions.		

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Listing III

Listing Notice	No.	Activity	Threshold	Exclusions
List III: GN 324	4	The development of a road wider than 4 metres with a reserve less than 13,5 metres.		
	10	Storage and handling of dangerous goods: 30 cubic meters		
	12	Clearing > 300 square meters		
	14	Dams, weirs > 10 square meters and structures and infrastructure >10 square meters		
	18	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.		

74

75

And Gauteng does its own thing….

76

Environmental Impact Assessment

- The applicant
- The environmental assessment practitioner
- The component authority
- Interested and affected parties

- Basic Assessment
- Scoping and EIA/EIR

77

Environmental Impact Assessment Core Concepts

- **The Environmental Assessment Practitioner (EAP)**
- **National Screening Tool!!**
- **Link – (https://screening.environment.gov.za/screeningtool/#/pages/welcome)**
- **Specialist Inputs and Specialist Studies**
- **Environmental Management Programmes (EMPr's)**
- **Environmental Authorisations**
- **Alternatives**
- **Public Participation**

78

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION OR FOR A PART TWO AMENDMENT OF AN ENVIRONMENTAL AUTHORISATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number:
Project name:
Project title: Basic Assessment Report for
Date screening report generated: 09/03/2020 11:13:50
Applicant:
Compiler: AquaEco
Compiler signature: .....

79

Environmental Impact Assessment Core Concepts

- The Environmental Assessment Practitioner (EAP)
- National Screening Tool!!
- Specialist Inputs and Specialist Studies
- Environmental Management Programmes (EMPr's)
- Environmental Authorisations
- Alternatives
- Public Participation

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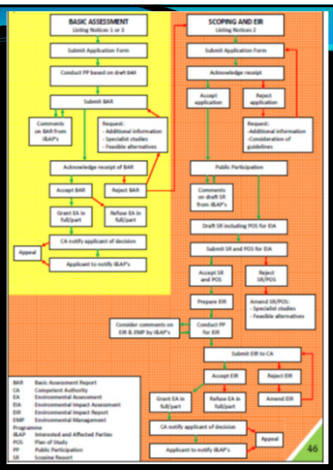

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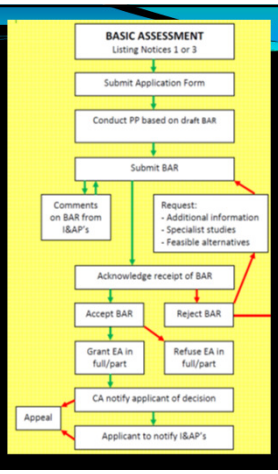

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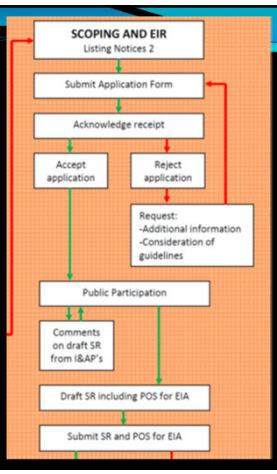

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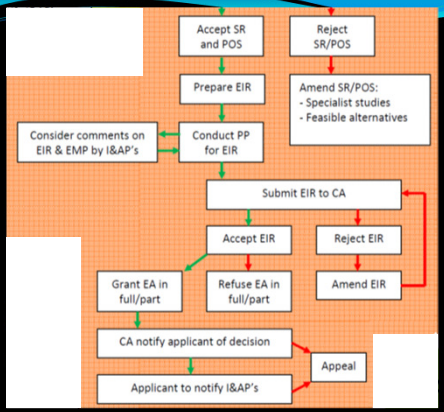

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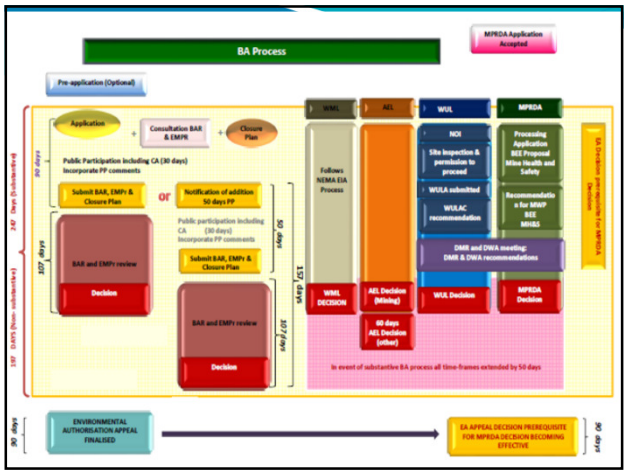

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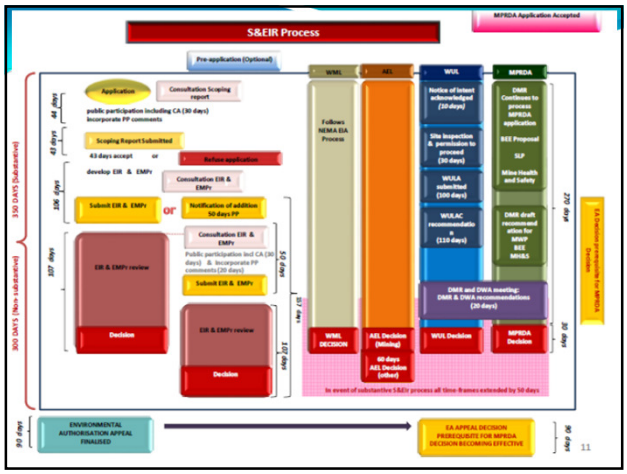

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Environmental Impact Assessment
Core Concepts

Competent Authority (CA)

- Gauteng: Department of Agriculture and Rural Development.
- KwaZulu Natal: Department of Economic Development, Tourism and Environmental Affairs.
- Limpopo: Department of Economic Development, Environment & Tourism.
- Mpumalanga: Department of Economic Development, Environment and Tourism.
- Northern Cape: Department of Economic Development, Environment, Conservation and Tourism.
- North West: Department of Economic Development, Environment, Conservation and Tourism.
- Free State: Department of Economic Development, Tourism and Environmental Affairs.
- Eastern Cape: Department of Economic Development and Environmental Affairs.
- Western Cape: Department of Environmental Affairs and Development Planning.

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Aspect or Question	
Is the requirement for an environmental authorisation triggered?	Basic Assessment activities – Listing Notice 1 Full Scoping and EIA activities – Listing Notice 2 **Remember sensitive environments!!**
Is a water use authorisation required?	Applicable to all abstraction, activities in streams, dams and watercourses and to the contamination of water.
Is a waste licence required?	Applicable when large volumes of waste are stored, treated or disposed of. Also applicable to the handling of hazardous waste.
Is an atmospheric emissions licence required?	Applicable to non-temporary asphalt plants, but remembering that temporary asphalt plants have specific monitoring and reporting requirements.
Is dust generation excessive?	Dust monitoring and reporting is required.

88

Is a mining permit or right required?	Applicable to all borrow pits
Are there any heritage matters involved (buildings older than 60 years or artefacts)?	Involve a heritage specialist to determine further requirements.
Are there any protected or sensitive areas nearby?	Involve an environmental specialist or assessment practitioner to determine the need for further authorisations.
Is rehabilitation by re-vegetation required?	Ensure that acceptable species are used by involving an botanical or rehabilitation professional.
Has compliance with provincial and local legal frameworks been checked?	Check with provincial and local authorities.
Is the activity in a coastal area?	Compliance to the Integrated Coastal Management Act may be required. Involve an environmental assessment practitioner.

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When the Environment ?

- Need for an EIA:
  - Basic Assessment – it's a list
  - Full Scoping and EIR – it's a list
- Need for an emissions licence – it's a list
  - Dust – it's a list (standard)
  - Temporary asphalt plants
- Need for a waste licence – it's a list
- Need for a water authorisation – it's a list

AQUA ECO

90

Approach

Find suitable sites

- **Start early!!**
- Correct zoning
- Away from sensitive areas
- Accessible

Preliminary scoping of sites

- **Start early!!**
- GIS to find sensitive areas
- Site visits by environmental practitioner that understands the sector

91

Approach

Determine full set of authorisation needs

- **Start early!!**
- Emissions Licencing – do exemptions apply to temporary plants?
- Environmental Authorisations
- Water Licencing
- Waste Licencing
- Dust
- (Where tenders apply – investigate tender specifications)

Undertake authorisation processes

- **Start early!!**
- Appoint consultant that understands the sector
- Determine costs beforehand
- Familiarise with steps in the authorisation process
- Keep tabs on timelines

92

Approach

Implement authorisations

- Diligently meet conditions of authorisation
- Implement Environmental Management Plan and dedicated approach to environmental management
- Invest in external auditing for compliance

React to problem area

- Public !!
- Inform authorities
- Consider public platforms

93

The Environmental Manager / ECO

- Taking charge of all environmental matters, usually in an advisory capacity but also with due cognisance that legal compliance may equip such a person with authority outside of the regular chain of command.
- Implementing the conditions of authorisations, the EMP, contractual obligations and codes as they apply.
- Checking compliance.
- Environmental awareness and training.
- Interaction with environmental authorities (and clients).
- Checking and auditing on activities.
- Identifying problem areas.
- Providing advice and solutions.
- Keeping, updating and maintaining an environmental management record and filing system.
- Assisting with method statements.
- Following through corrective actions.
- Following through disciplinary actions and environmental penalties if they apply.
- Reporting to authorities, the public or clients as applicable.

94

Management Systems and Tools

- Authorisations
- Contact Specifications
- The Environmental Management Programme
- Environmental Method Statements
- Contingency Plans
- Codes of Practice
- Industry and Other Standards
- Environmental Awareness Training
- Environmental Monitoring
- Checklists and Audits
- Management of Environmental Incidents
- Management of Environmental Complaints
- Authorities and the Public
- Files and Registers

95

Authorisations

- Environmental Authorisation, Water Licence, Waste Licence, Atmospheric Emissions Licence
- Typical content of an authorisation
- Conditions and compliance

96

Contracts

- Contractual obligations in environmental management
- Contractual specifications
- Tenders and COLTO

97

The Environmental Management Programme

- Details of the practitioners who prepared the EMPr and the expertise of the practitioner to prepare the EMPr.
- Information on any proposed management or mitigation measures that will be taken to address the environmental impacts that have been identified, including environmental impacts or objectives in respect of:
  - Planning and design.
  - Pre-construction and construction activities.
  - Operation or undertaking of the activity.
  - Rehabilitation of the environment.
- A detailed description of the aspects of the activity that are covered by the draft environmental management programme.
- An identification of the persons who will be responsible for the implementation of the environmental management programme.
- Proposed mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon.

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The Environmental Management Programme (*Cont.*)

- As far as is reasonably practicable, measures to rehabilitate the environment affected by the activity, which conforms to the generally accepted principle of sustainable development, including, where appropriate, concurrent or progressive rehabilitation measures.
- A description of the manner in which it intends to:
  - Modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation.
  - Remedy the cause of pollution or degradation and migration of pollutants.
  - Comply with any prescribed environmental management standards or practices.
  - Comply with any applicable legal provisions regarding closure, where applicable.
  - Comply with any legal provisions regarding financial provisions for rehabilitation, where applicable.
- Time periods within which the measures contemplated in the environmental management programme must be implemented.
- The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of undertaking the operations.
- An environmental awareness plan describing the manner in which:
  - The applicant intends to inform their employees of any environmental risk which may result from their work.
  - Risks must be dealt with in order to avoid pollution or the degradation of the environment.

99

Methods Statements

- Description of the work to be undertaken or the situation (**what**)
- Identification of the potential environmental impacts
- Location of the works or the situation (**where**)
- Responsible parties in the works (**who**)
- Methodology of the works (**how**)
- Timing of the works (**when**)
- Declarations and signatures of authority

100

Contingency Plans

- Contingency plan for hydrocarbon spills
  - Identify spill source and stop if possible
  - Identify people at risk (remove) and cordon area off
  - Identify risk of fire and take steps to address (increase fire control measures)
  - Contain spilled material if possible
  - If required contact local emergency response units
  - Treat with on-site bioremediation materials if scale allows
  - Inform authorities
  - Contact professional waste/spill treatment company if required
  - Monitor clean-up and removal
  - Rehabilitate contaminated area
- Contingency plan for fire
- Contingency plan for legal compliance matters
- Contingency plan for flooding

101

Codes of Practice

- Company or organisation policies and SOP's

ENVIRONMENTAL MANAGEMENT POLICY

Wilson Bayly Holmes-Ovcon Limited (WBHO) acknowledges a moral and legal responsibility for the safeguarding of the environment; accordingly, WBHO is committed to minimising its impact upon the environment and to ensuring compliance with legal and regulatory requirements. WBHO strives to achieve the highest standards of environmental protection at every stage of the construction process by upholding the basic principles of environmental management. Protecting the environment is considered as important as protecting the safety of WBHO employees. WBHO is an ISO 14001 certified organisation and a member of the Green Building Council of South Africa (GBCSA).

WBHO recognises that:

- A project exists within a physical environment that must be respected.
- All environmental impacts of a project should be addressed and managed responsibly.
- All interested and affected parties have the right to information relating to the environmental impacts of a project.

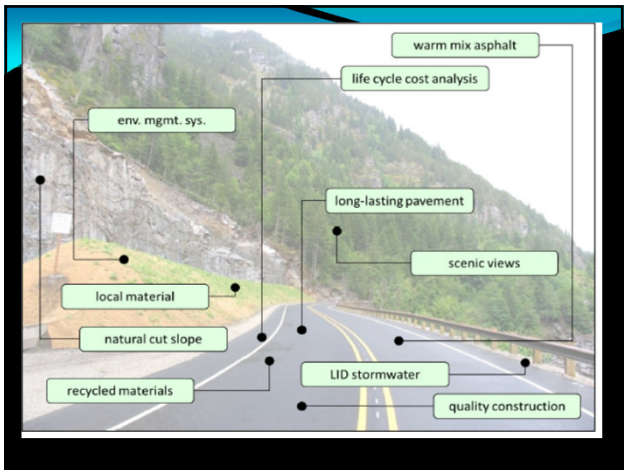
- May contain legal provisions, but are legally not superior to authorisations

102

Industry and Other Standards

- Company or organisation policies and SOP's

103



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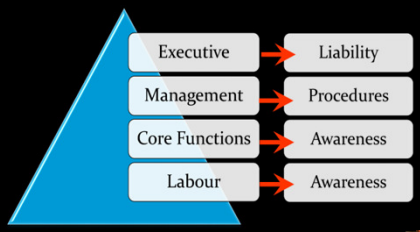
Environmental Awareness



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Environmental Awareness

- Awareness starts with self-worth and self-esteem and self-realisation
- Awareness relies on knowledge of why and how to conduct oneself
- Awareness relies on care and knowledge of circumstances
- Awareness is most effective if its relevant
- Be sensitive to language and level of education
- Consider venue, time of day, materials and displays
- Use basic do's and don'ts but don't apply in in a dictatorial manner
- Where possible use incentives
- Repeat training is required
- Keeping of an attendance register is a legal requirements
- Subcontractors must be subjected to environmental training

106

ENVIRONMENTAL INDUCTION

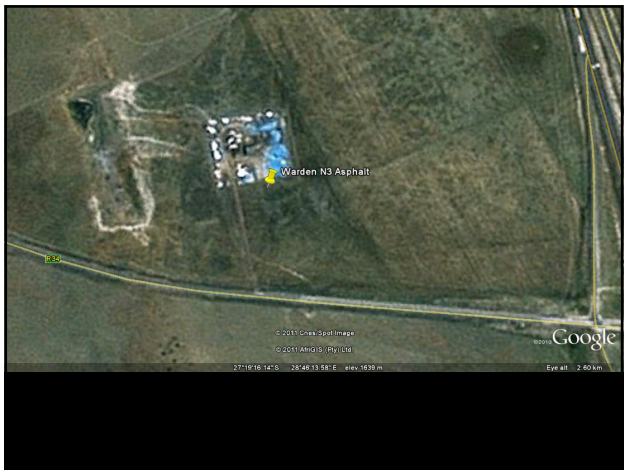
107

Why are we doing this

- We have a legal obligation – South African laws

- We have an obligation to the environment
- We have an obligation to the communities in the area
- We have an obligation to ourselves
- We have an obligation to each other
- We have an obligation to future generations

108



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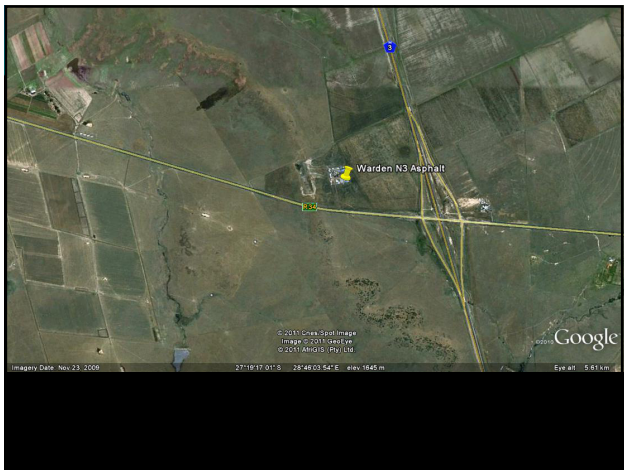

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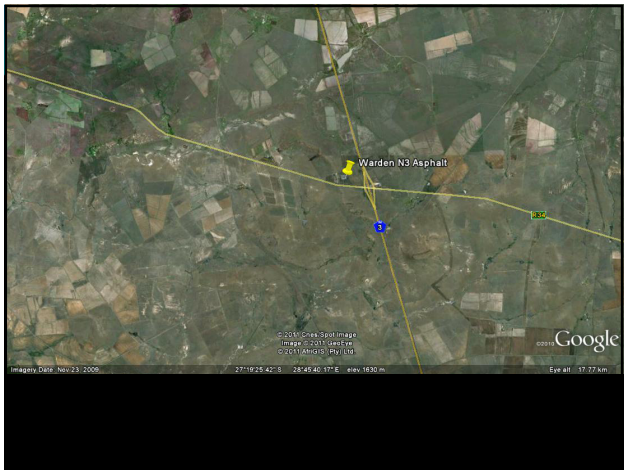

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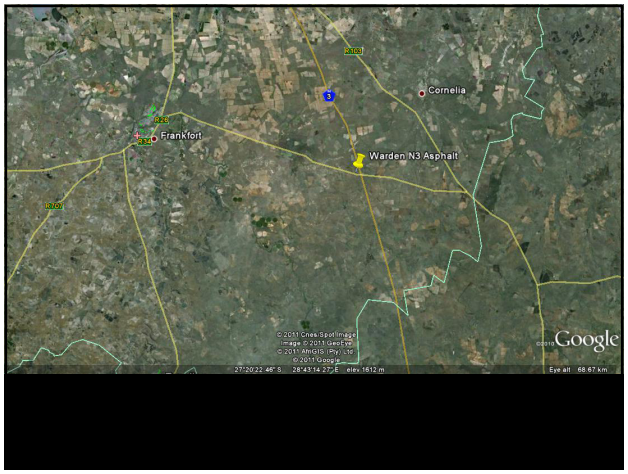

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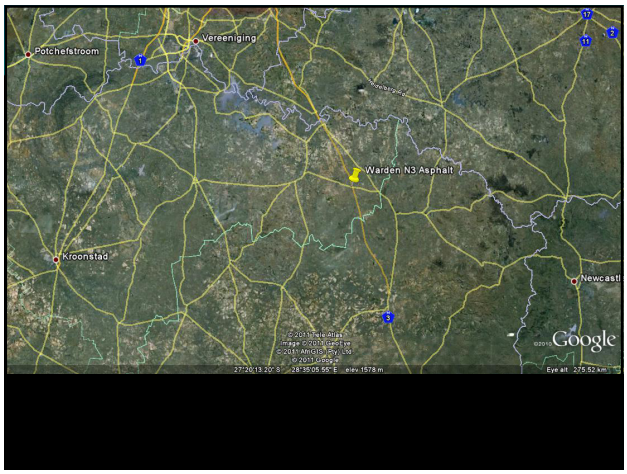

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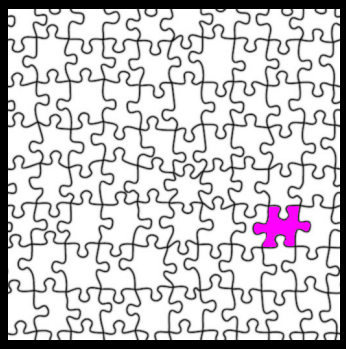

- How does one deal with BIG issues?
- One person at a time.
- Look at:
  - AIDS
  - Apartheid
  - The Soccer World Cup
  - Saving the Environment

117

What is the *environment*

- The air you breath.
- The ground under you.
- The sunshine you stand in.
- The rain.
- The food you eat.
- The people around you.

118

What is an EIA

- A process to determine the impact of an activity on the environment
- A process that was used to determine the impacts of the Warden Asphalt Plant on the environment
- A process to make sure that the environment is protected for all of us
- A process that that keeps going
- A process to make you aware of the environment

119

What is an *authorisation*

- After an EIA the Government says:

"OK", but make sure you look after the environment"

Many conditions attached to the authorisation

120

What is in the *authorisation*

- Protect the water
- Comply with an Environmental Management Plan
- Appoint an Environmental Control Officer (ECO)
- Minimise, contain and re-cycle waste
- Storage and handling of fuel
- Manage air quality
- Monitor and report

121

What can I do?

- Realise that the environment will become the most important world issue in the future.
- Think about the environment.
- Think about you litter
- Think about the air you breath
- Act like the environment belongs to you

122

Litter and rubbish

- Use dustbins
- Ask for more bins
- Don't think someone else will clean after you
- Pick up the litter
- Cigarette butts
- People littering are littering YOUR environment

123

Smoke, smell and pollution

- Assist in keeping dust levels low.
- Keep an eye out on smoke and pollution
- Report problems

124

Materials Handling

- Handle fuel with care
- Prevent spillage
- Make sure valves are closed
- Don't leave open fuel unattended
- Make sure safety equipment is in place
- Know what to do in an emergency

HEATH AND SAFETY ISSUES

125

Toilets

- Don't make our work place a toilet.
- Keep toilets the way you want them when next you need them.
- Report lack of toilets.
- Report miss-use.

126

Fire

- No unattended fires.
- Cigarette butts (smoking areas).
- Report fires immediately

127

Stormwater and Erosion

- Don't leave it for someone else
- Check your area after rains
- Fix it before someone tells you to fix it

128

Social, Access, Natural Features

- Don't leave the contract site (onto farms)
- Treat all people with respect.
- Report all complaints
- Don't damage natural features

129

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In Summary

- **This is YOUR environment**
- **We are heading into a time where environment will become the biggest issue**
- **Government or anybody else (and you) can check if your company is doing its part to protect YOUR environment**
- **Anybody can check that YOU are doing your part**

KEEP IT CLEAN AND SAFE

Etienne Hinrichsen – 082 822 1236

145

Environmental Monitoring

- Transparent
- Repeatable
- Accurate and unbiased
- Continuous or at least with a specified timeframe
- Useful in terms of data meaningfulness and impact
- Sufficiently sensitive
- Cost effective

- **There could be a submission requirement!!**

146

Checklists and Audits

- Can be a company SOP
- Can be good practice
- Can be a condition of authorisation (audits)

- Don't pass the responsibility to someone that is not equipped or qualified
- **Don't file the authorisation and forget about it!!!**

147

Incidents Registers

- All **legally required** health and safety measures must be in place, emergency contact numbers of all response agencies and authorities displayed clearly on site and people identified with whom the responsibility lays in the event of environmental incidents.
- At detection of an environmental incident the **responsible person** must be notified immediately.
- When safe to do so, measures must be taken to **stem** the incident and causative factors as apply.
- Where possible and provided no immediate damage can be caused to the environment, contingency plans should be referenced to formulate a **strategy** for dealing with the matter.
- The strategy must be **implemented** by means of resource allocation and where required emergency responses services should be alerted for assistance.
- All major incidents must be **recorded** in an environmental incidents register with details of the nature thereof, the date and the steps taken in dealing with the matter.
- It must be established whether the incident has caused **non-compliance** in terms of any authorisations, licences, permits and contract. If so, these compliance frameworks must be checked for any prescriptive measures and particularly reporting requirements.
- All applicable authorities must be **informed** as soon as possible. Where required, authorities can be invited to inspect the incident
- Incident **analysis** should be done after an incident has been addressed. The analysis should look into the cause and the manner in which the incident was resolved. This analysis should be recorded in the incidents register.
- Where required a post-incident **audit** or investigation of the environmental damage may be required.
- Actions must be taken to prevent the incident from reoccurring and, if necessary, a **contingency plan** should be developed or existing plans updated.
- The content of an incident register should be subjected to any auditing regime that may apply.

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Complaints Registers

- All complaints must **be recorded** in a complaints register with details of the nature of the compliant, the person or organisation that lodged the complaint, the date and the name of the responsible person dealing with the complaint.
- The compliant must be fully **investigated**. Further clarity may also be obtained from production and environmental records, from employees, from third party specialists or from the complainant.
- A **strategy** to deal with the compliant must be formulated, documented in the complaints register and communicated to the complainant.
- The formulated strategy must be **implemented** by the allocation of resources.
- The effects of the strategy should be **monitored** and modified if need be.
- Once the situation leading to the compliant has been resolved, the complainant must be **informed**. The date hereof should be recorded in the complaints register.
- Actions must be taken to prevent the situation from reoccurring and, if necessary, a **contingency plan** should be developed.
- If a situation leading to a compliant cannot be resolved under normal production conditions, an **amicable solution** should be devised with inputs from the complainant.
- If required, the relevant **authorities** should be involved in the resolve of a compliant.
- The complaints register must be **reviewed** regularly to ensure that all complaints have been dealt with effectively.
- The content of a complaints register should be subjected to any **auditing regime** that may apply.

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Authorities and the Public

- Make use of a stakeholder based Environmental Monitoring Committee
- Provide contact details for the public and deal with complaints in a comprehensive manner
- Adopt an "open-book" policy related to environmental management
- Keep a comprehensive environmental management filing system and complaints register system
- Update authorities on matters of importance and "partner" with local authorities
- Be open to public suggestions

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Environmental Files and Registers

- Assessments, Studies and Reference Materials
- Environmental Authorisation and Contractual Obligations
- Environmental Management and other Plans
- Environmental Codes of Practice
- Environmental Training and Inductions Programme and Register
- Environmental Method Statements
- Environmental Contingency Plans
- Monitoring Programmes and Results
- Audit Programmes and Results
- Environmental Monitoring Committee / Public Interaction
- Environmental Complaints Register
- Environmental Incidents Register
- Agendas and Minutes
- Correspondence

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Water Management

- Stormwater management:
  - Stormwater management infrastructure needs to be in place.
  - All materials and works to be protected against stormwater damage.
  - Contamination of stormwater by means of fines and chemicals should be prevented.
  - Fuels and chemicals should be stored so that stormwater and flooding does not pose a risk.
  - Oil and silt traps to be used at all fuel dispensing and other sensitive areas.
  - Stormwater cut-off tranches must be adequately stable to prevent erosion.
  - Erosion control measures to be used where required to prevent stormwater damage.
  - Where stormwater damage occurs this must be repaired and mitigated as soon as possible.

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Water Management

- Water for construction and dust:
  - Consider binders or stabilisers where possible.
  - Prevent runoff when watering for dust.
  - Management of traffic.
  - Consider wind direction.
  - Use water sparingly.

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Water Management

- Management of water abstraction:
  - Ensure that abstraction is legally authorised
  - Ensure that abstraction is within allowed for limits
  - Ensure that water is not polluted
- Water crossings:
  - Consider the need for environmental authorisations
  - Programme in terms of seasonality
  - Implement

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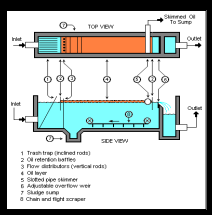
Water Management

- Wash bays:
  - Design for capture of water and contaminants
  - Impervious flooring
  - Lead via oil and silt traps
  - Recycle water where possible



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Soil, Stockpiles, Borrows and Spoils

- Dust controls
- Erosion controls
- Preservation of topsoil
  - Topsoil preservation from all work areas as practically possible
  - Stockpiles to be limited in height
  - Protection from stormwater
  - Protection from alien vegetation infestation
- Other stockpiles:
  - Protection from wind and stormwater
  - Position in relation to works and prevailing wind
- Borrow pits and spoil sites
  - Consider legal obligations (mining permits and rights)
  - Erosion control
  - Aesthetic impact
  - Rehabilitation measures – infrastructure removal, contour shaping, rip access roads, topsoil and fertilisers, soil compaction, re-vegetation and weed control
  - Obtaining closure certificates from DMR for borrow pits

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Storage and Use of Bitumen

- Bitumen Storage
  - Establish need for an environmental authorisation
  - Bunded area to contain spills
  - Remedial products available
  - According to MSDS
- Bitumen Use
  - Prevent spillage and leakage
  - Re-use where possible
  - Contained "testing" area or areas for cleaning of spray bars etc.
  - Treatment and disposal plan
  - Disposal at register hazardous waste disposal site
  - On-site treatment

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Handling Bitumen and Asphalt

- Consideration of fugitive emissions
- Remediation of emissions
- Containment of spills and on-site spill response materials
- Waste plan for dealing with waste and reject bitumen and asphalt – re-use and recycling.
- Use of SANS
  - SANS 10228: 2010 The identification and classification of dangerous goods.
  - SANS 10231: 2010 Transportation of dangerous goods - operational requirements.
  - SANS 10368: 2007 Transportation of low-hazard goods in bulk.

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Storage and Use of Fuels

- Storage
  - Establish need for an environmental authorisation
  - Bunded area to contain spills
  - Lockable
  - Fire prevention methods and fire safety in place
  - Shut off valves
  - Hard surface for refuelling areas (with oil separator)
  - Remedial products available
  - According to MSDS
- Use
  - Prevent spillage and leakage
  - Responsible person in attendance
  - Leak proof mobile fuel transporting (use drip trays)
  - Disposal and treatment of contaminated soils

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Waste

- General waste (akin to domestic waste related to eating, office work etc.)
- General organic waste from landscape maintenance.
- Sewerage and waste water.
- General construction waste (concrete, stone and disused construction materials)
- Hazardous waste materials and chemicals.

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Waste

- Waste management must be formalised to ensure that it does not cause pollution and potential environmental degradation:
- General waste must be collected into suitable water, wind and animal proof waste containers and removed to a disposal site on a regular basis.
- General waste should be separated into glass, paper and plastics so that these can be recycled.
- Emptying out of waste containers must be regular to prevent overfilling. Disposal must be done at recognised water disposal sites.
- Waste should not be allowed to litter asphalt plant sites.
- A culture of waste reduction, collection and disposal must be instilled with all employees by means of guidance and education.
- Vegetation matter from landscaping activities must be removed to a suitable disposal site or composted for later use.
- No waste should be buried or burned.
- Hazardous waste (e.g. expired chemicals) must be disposed of via an approved hazardous waste disposal site. Oil and grease may be disposed of via provision to a commercial third party for recycling .

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Air Quality Management

- Divert asphalt drum emissions to burner
- Plan site layout to limit impact
- Increase stack hight
- Use additives or ozone if need be (rubber!!)
- Use low sulphur fuels
- Manage asphalt process temperatures.

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Rehabilitation

- Rehabilitate as soon after completion of works as possible
- Ensure all infrastructure is removed
- Take regard of seasonality
- Ensure topography is aligned
- Return preserved topsoil and fertilise of required
- Rip and break compacted soils
- Re-vegetate with seed and species appropriate to the area
- Implement weed control where required

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Road Reserves

- Runoff and erosion management should be implemented in road reserves.
- Vegetation should be maintained by periodic cutting and burning where appropriate. Cutting and burning should be done with due consideration of seasonality.
- Road reserves must not become a fire hazard to neighbouring properties.
- Road reserves must be adequately fenced off.
- Road reserves should be vegetated with appropriate plants species and where practical, these should be indigenous and serve purposes of soil stabilisation, shading, aesthetics and screening.
- Alien vegetation should be controlled in all road reserves.
- Litter disposal and litter removal should receive attention in road reserves.

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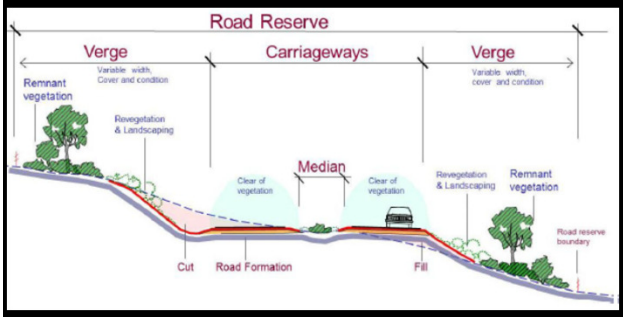

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CARBON Footprinting

- Carbon trading (credits) is now an active and established international practice.
- Carbon management is here to stay, due to:
  - The international drive (COP 17)
  - The scale of the sector
  - Legislation
  - Global warming
  - The social conscience
- Current carbon taxes include levies on electricity and vehicle tax.

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CARBON Footprinting

- Number of environmental taxes are being contemplated (Gordon, 2010 Budget Speech)
- National Climate Change Response Paper (2011)
- By 2013 significant submitters will report GHG emissions to national inventory
  - JSE Carbon Disclosure Project
  - King III reporting
- Carbon Tax Discussion Paper (2011)

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CARBON Footprinting

- A carbon footprint is the total set of GHG emissions caused directly or indirectly by an individual, organization, event or product.
- Steps in a carbon footprinting exercise:
  - Establish an emissions boundary, goals and a reporting timeframe
  - Collect activity data
  - Calculate GHG emissions (emission factors)
  - Mitigation measures = cost savings and less taxation
- **GHG Emissions = Activity Data x GHG Emissions Factors**

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The Challenge

- Society is changing its perception and approach
- Environmental laws are:
  - Numerous
  - Rapidly evolving
  - Contradictory
  - Interlinked
  - Sluggish towards technology changes
  - Lack interpretation – precautionary principles
  - Without much case law / precedent
- Corporates are being "taxed" with compliance

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The Solution

- Integrated Planning
- Never conceptualise a project in EIA
- Pre-application meetings with authorities
- Ask for advise
- Pre-scope environmental matters in tender phase

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Integration of Environmental Management

- In client relations and company profile
- In prospecting and sourcing
- In project tender processes
- In project planning
- In project execution
- In costing
- In rehabilitation

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