

APPENDIX A:

REGULATION THROUGHOUT THE COAL MINING LIFE CYCLE

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1 INTRODUCTION

This appendix consists of an annotated list of 50 instruments relevant to regulating the relationship between mining (including coal mining) and the environment, with comments on their usefulness, and relationship to ecological infrastructure thinking.

The instruments listed below have been divided into those relevant to:

- A. Resource directed measures
- B. Source directed controls (standards, statements of liability, regulatory controls)
- C. Monitoring, inspections and powers of state intervention
- D. Criminal offences and powers of court in criminal matters

The instruments listed in these categories differ from high level statements of rights and principles,¹ and mid-level planning instruments.² Rather, the instruments tend to be quite concrete and specific in their application, both to the individual private enterpriser the relevant state department.

The annotation to each instrument has the following scope:

The legal authority for the instrument³

The powers conferred, duties imposed, or rights established by the instrument⁴

Three analytical questions:

How does the instrument link to the discourse of ecological infrastructure?

The use of this instrument in the Carolina acid mine drainage event of January 2012 (and its aftermath)

General comments on the use of this instrument.

Very few of the instruments are consistent with the discourse on ecological infrastructure. The predominant conceptual framework and discourse is that of sustainable development, where nature in its diverse forms, is predominantly conceived of in terms of types of “impact” that require mitigatory or remedial action, and with the policy goal of integrating economic and social development with environmental protection. The paucity of instruments giving effect to the notion of ecological infrastructure is understandable given that the sustainable development narrative is “hard-wired” into the substance of the regulatory framework through the constitutional environmental right, and the statement of environmental management principles in the National Environmental Management Act (NEMA).

¹ Examples include the constitutional right to environment (s 24) and the right of access to sufficient water (s 27); the principles of environmental management in s 2(4) of the NEMA; the notion of state custodianship of water resources and minerals, and state “trusteeship” of biodiversity.

² Such as the Catchment Management Strategy (NWA); the Integrated Development Plan (MSA); Water Services Development Plans (WSA); and Bioregional Plans (NEMBA).

³ This refers to the relevant statutory source of the instrument, identified by the section number, Act number and year (see also abbreviations).

⁴ Powers, rights and duties should all be read with their legal character in mind; i.e. the potential to ultimately be backed by State force. Powers are ordinarily exercised by state officials; duties may be imposed on state officials or on mining proposals; and rights may vest in mining proponents or third parties. It is not necessary that legislative provisions always convey all three categories of legal action.

2 RESOURCE DIRECTED MEASURES

Resource-directed measures are rights, powers and duties directed toward the resource, rather than the source of pollution or ecological degradation.

2.1 Classification of water resources and specification of resource quality objectives

Legal authority: Sections 12 – 15, National Water Act (NWA)

Powers: 1) The Minister of Water Affairs must prescribe a system for classifying water resources. The classification system is intended to ensure the ecological sustainability of all significant water resources by taking into consideration the social and economic needs of the competing interests in relation to the water resource. Regulations on the classification system were published in 2010 as GN810 in GG 33541 of 17 September 2010. 2) Minister of Water Affairs must for every significant water resource, determine the class and the resource quality objectives (RQOs) that apply. RQOs may relate to a variety of the water resources' dimensions. The Minister may also make a preliminary determination.

Duties: The Minister of Water Affairs, the Director-General, an organ of state, and a water management institution must give effect to the water resource class and the RQOs when exercising any power or performing any duty under the NWA.

Link to ecological infrastructure concept: Recognition of ecosystem goods, services and attributes in the classification regulations, also recognise that some water resources will be worked harder than others, but subject to the “ecologically sustainable base configuration scenario”.

Questions: Do either of the Boesmanspruit or Nkomati rivers have a classification and specified RQOs? When were they established? Do they have a preliminary classification? Which parties (if any) are aware of the resource classification and RQOs?

Comments: What is interesting about the duties is that it also binds “an organ of state”; i.e. any national, provincial or local authority (not only water affairs) that exercises rights or powers in relation to that water resource.

2.2 Determination of the Reserve

Legal authority: Sections 16 – 18, National Water Act

Powers: The Minister of Water Affairs must as soon as reasonably practicable after the class of a water resource has been determined, determine the Reserve for all or a part of that resource. The Minister may make a preliminary determination of the Reserve.

Duties: The Minister of Water Affairs, the Director-General, an organ of state, and a water management institution must give effect to the Reserve when exercising any power or performing any duty under the NWA.

Link to ecological infrastructure concept: The Reserve is the quantity and quality of water required (a) to satisfy basic human needs for water; and (b) to protect aquatic ecosystems in order to secure ecologically sustainable development and use of the water resource.

Questions: Has the Reserve for either the Boesmanspruit or the Ncomati been determined? Is there a preliminary classification? Which parties (if any) are aware of the Reserve for these sources?

Comments: Like the duty to give effect to the resource classification and RQOs, the duty to give effect to the Reserve binds a broad range of parties – in fact, any organ of state. The Reserve is a broad enough concept to carry the interests of the people of Carolina in a safe drinking water supply.

2.3 Protection of threatened or protected ecosystems (National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA))

Legal authority: Sections 51 – 55, National Biodiversity Act

Powers: 1) The Minister of Environmental Affairs may publish a national list of ecosystems that are threatened and in need of protection. A national list of ecosystems that are threatened and in need of protection was published as GN1002 in GG 34326 of 27 May 2011. 2) The MEC responsible for the environment may publish a provincial list of ecosystems in a province that are threatened and in need of protection. In respect of these powers, four categories of ecosystem may be listed. The first would seem to apply to Carolina; i.e. critically endangered ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation. 3) The Minister of Environmental Affairs may identify any process or activity in a listed ecosystem as a threatening process.

Duties: 1) Any published national or provincial list must be reviewed every five years. 2) If the Minister has identified a threatening process in a protected ecosystem, the proponent of the process must obtain an environmental authorisation under the NEMA. 3) An organ of state obliged to prepare an environmental implementation plan or environmental management plan under the NEMA, and a municipality in the preparation of an IDP must take into account the need for the protection of listed ecosystems.

Link to ecological infrastructure concept: These laws allow for the bounding and recognition of “ecosystems” in particular areas and for their protection.

Questions: Is there any scope for recognising the Boesmanspruit catchment as an ecosystem requiring recognition and protection at either the national or a provincial level?

Comments: This protection looks fairly impressive but it is not linked to any duties that have a substantial impact. The regulations spell out the implications of listing an ecosystem as threatened and protected however and these must be followed up. The need for protection of an ecosystem is not linked to any quality of the system itself (i.e. it need not be a “pristine” or a conservation area, for example), but rather to the state of degradation of that system.

3 SOURCE DIRECTED CONTROLS (STANDARDS, STATEMENTS OF LIABILITY, REGULATORY TOOLS)

3.1 Rehabilitation standard

Legal authority: Section 38(1)(d), Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA), s 24N(7)(e).

Duties: The holder of a prospecting or mining right must, as far as it is reasonably practicable, rehabilitate the environment affected by the prospecting or mining operations to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development.

Link to ecological infrastructure concept: Not explicit.

Questions: What kind of end land use did the EMPs for the mines in the Carolina case specify?

Comments: This is the “rehabilitation standard” in the MPRDA. It is key because it determines the extent of financial provision and the scope of efforts to close the mine and manage residual and latent environmental impacts. The standard is stated very broadly and it is highly unlikely that any EMP would state a return to a “natural state”. Apparently the use most commonly identified is a return of the land to a “wilderness area”.

3.2 Statement of liability for environmental damage

Legal authority: Section 38(1)(e), MPRDA; section 24N(7)(f), NEMA.

Duties: 1) The holder of a prospecting or mining right is responsible for any environmental damage, pollution or ecological degradation as a result of his or her prospecting or mining operations and which may occur inside and outside the boundaries of the area to which the right relates (MPRDA formulation). 2) To the responsibility for environmental damage, pollution and ecological degradation, the NEMA adds “the pumping and treatment of extraneous water”.

Link to ecological infrastructure concept: Not explicit.

Questions: In which of the mines’ mining area was the drinking water supply of the town of Carolina related? Is there a map showing the extent of the different mining areas?

Comments: This standard is not expressly linked to any criminal liability (as for example, the failure to manage impacts in accordance with the Environmental Management Programme (EMP)). However is it valuable to counter arguments that mining companies are not responsible because the pollution etc is not taking place *within* the mining area.

3.3 Environmental management plan/programme

Legal authority: Sections 38 – 40, item 10, Schedule 2 MPRDA

Duties: 1) An applicant for a prospecting right must prepare an environmental management plan in accordance with the MPRDA regulations. 2) An applicant for a mining right must prepare an environmental management programme in accordance with the MPRDA regulations. 3) The holder of a prospecting or mining right must manage all impacts in accordance with the approved EMP, where appropriate, and as an integral part of operations. 4) The Minister of mineral resources must consult with any state department administering a law relating to the environment and request the HoD to submit comments within 60 days.

Powers: 1) The Minister of mineral resources must approve an EMP within 120 days if (a) the applicant has established baseline data on the affected environment; investigated, assessed and evaluated the impact of the prospecting or mining operations on the environment, socio-economic conditions and national heritage; developed an environmental awareness plan for employees; and described the manner in which pollution or ecological degradation would be modified, remedied, controlled, etc; (b) provided the relevant financial provision; and (c) has the capacity or has provided for the capacity to rehabilitate and manage negative impacts on the environment. 2) At any time after approving an EMP, the Minister of minerals may approve an amended EMP.

Link to ecological infrastructure concept: The MPRDA’s provisions on the EMP do not give effect to the notion of “ecological infrastructure”. They are situated within a sustainable development discourse and the management of environmental “impacts”. The regulations do not allow for or guide a valuation of environmental assets in the public interest.

Questions: 1) Did all the mines operating in the catchment area have approved EMPs? Which of the mines in the catchment held old order rights that required the amendment of the EMP upon the Minister's direction, and which were the holders of new order rights? 2) If the rights were old order rights, did the Minister direct any amendments of the EMP? 3) According to the approved EMPs what impacts did the prospecting and mining operations have on the water resources? Was any provision made for cumulative impacts? What mitigation measures were indicated in the EMP? What did each EMP say about how those impacts would be managed upon closure? 4) Did the Minister of minerals approve an amended EMP at any time (old or new order rights)? 5) When approving the EMP or an amended EMP for any of the mines did the Minister of minerals consult with other State departments administering laws relating to the environment? If so, which departments were consulted? What was their input to the process?

Comments: The EMP is the central regulatory tool in managing the environmental impacts of mining. It requires applicants to undertake a detailed EIA of the operations before starting and forms the basis for the continued operational management of environmental impacts. At the time the crisis took place the relevant rules were contained in s 38 of the MPRDA (and are in fact still relevant because the new system under NEMA which requires applicants getting an environmental authorisation, only kicks off in December 2014). It would therefore be critical to obtain copies of the approved EMPs for all the mines operating in the catchment area. Determining how the different EMPs described the impacts on the water resources in the catchment would constitute a mini-project on its own. The EMP is closure oriented and must include information on the closure objectives and a closure plan. It was the only one of the 5 environmental duties articulated in s 38 to be linked to a criminal offence. The power of the Minister of minerals to amend an EMP is couched very broadly and there is no public participation requirement linked to this amendment.

3.4 Objection to the granting of a prospecting or mining right

Legal authority: Section 10 MPRDA.

Rights: 1) Interested and affected persons may submit an objection to the granting of a prospecting or mining right to the Regional Manager (RM).

Duties: 1) If an objection is submitted the RM must refer the objection to the Regional Mining Development and Environmental Committee (RMDEC). 2) The RMDEC must consider the objection and advise the Minister of minerals thereon. 3) The Minister of minerals may not approve an EMP without considering the advice of the RMDEC, where this is relevant.

Link to ecological infrastructure concept: None.

Questions: When any of the new mines in the catchment were being approved, were objections submitted and referred to the RMDEC? What was the view of the RMDEC in each case?

Comments: The power to object provides interested and affected parties with one avenue to oppose the granting of prospecting and mining rights on environmental grounds. The relief however is weak – simply a referral to the RMDECs. At the time the crisis occurred, the RMDECs were being criticised as loaded with Department of Mineral Resources (DMR) officials that crowded out the views of other departments. The RMDEC also has advisory powers. It is seen as a weak institution that generally pre-emptively rubberstamps a positive decision. The RMDECs also lack transparency. Discussions are not open to the public and deliberations and decisions are not publicly accessible.

3.5 Financial provision for rehabilitation

Legal authority: Section 41 MPRDA (to be replaced by section 24P NEMA in December 2014).

Duties: 1) An applicant for a prospecting or mining right must make the prescribed financial provision for the rehabilitation of “negative environmental impacts” before the Minister of minerals approves the EMP. 2) The holder of a prospecting or mining right must annually assess his or her environmental liability and increase the financial provision to the satisfaction of the Minister. 3) The holder must maintain and retain the financial provision until the Minister of minerals issues a closure certificate.

Powers: 1) If the Minister of minerals is not satisfied with the amount of financial provision he or she may appoint an independent assessor to conduct the assessment. 2) If the holder fails to rehabilitate or to manage environmental impacts the Minister may, upon written notice to the holder, use all or part of the financial provision for this end. 3) After a closure certificate is issued the Minister of minerals may still retain any portion of the financial provision for rehabilitation or to manage latent and residual impacts.

Link to ecological infrastructure concept: None. The DMR has a guideline on the calculation of financial provision but these are squarely based on “impact management” not on replacing the value of lost natural capital.

Questions: 1) Did the mines operating in the Carolina catchment area make financial provision for rehabilitation? What amounts were proposed? What form did the financial provision take (usually a trust)? Did the mines maintain the financial provision, annually reassessing their environmental liability? 3) Did the Minister of minerals express dissatisfaction over the levels of financial provision and appoint an independent auditor? Did the Minister use the financial provision to rehabilitate or manage negative impacts?

Comments: The duty to make financial provision for rehabilitation is a key element of the closure model for mines. The DMR guideline on this has been strongly criticised for failing to properly quantify the full costs of rehabilitation and the management of residual and latent environmental impacts. The holders of old order rights were not specifically required to make provision for financial provision for closure, although as part of amended EMPs they would generally propose a higher level of financial provision.

3.6 Closure certificate

Legal authority: Section 43 MPRDA (amended on 7 June 2013 by Act 49 of 2008).

Duties: 1) The holder of a prospecting or mining right must apply to the RM for a closure certificate upon lapsing, abandonment or cessation of the right in question; cessation of the prospecting or mining operation; and completion of the prescribed closure plan within 180 days of any of these events occurring. Post 7 June 2013: This duty also applies the holder of an old order right, or to a previous owner of works that has ceased to exist; until the closure certificate is issued the holder remains responsible for the pumping and treatment of “extraneous water”. 2) The application for a closure certificate must be accompanied by the prescribed environmental risk report. 3) The application for a closure certificate may be accompanied by an application for the transfer of environmental liabilities. 4) The Minister of minerals may not grant a closure certificate until the Chief Inspector and the department responsible for water affairs, have confirmed in writing that the provisions pertaining to health and safety and management of potential pollution to water resources have been addressed. Post 7 June 2013: The duty to obtain certification extends to each government department charged with the administration of any law relating to any matter affecting the environment, and they must also certify that the pumping and treatment of extraneous water has been addressed.

Powers: 1) The Minister of minerals may issue a closure certificate (subject to the certification of the Chief Inspector and the department of water affairs). 2) The Minister may retain any portion of the financial provision for managing latent and residual impacts becoming known in the future. Post 7 June 2013: 3) The Minister of minerals, in consultation with the Minister of environment, may initiate steps to ensure the regional closure of mine.

Link to ecological infrastructure concept: None, the closure certificate is based on the “impact model”.

Questions: 1) Which of the mining companies in the Caroline catchment meet the conditions for applying for a closure certificate? 2) Which companies have applied for a closure certificate? 3) Have any closure certificates been granted? 4) If closure certificate were granted what other state departments were consulted? 5) Does the Minister of minerals have any plans for regional closure of mines in the Caroline catchment?

Comments: The closure certificate is a key element in the model for regulated closure. At the time the crisis occurred it still functioned to end the liability of the mine for managing environmental impacts. From December 2014, liability will continue notwithstanding the issue of a closure certificate.

3.7 Transfer of environmental liabilities

Legal authority: Section 43(2) MPRDA; regulations 58–59, MPRDA regulations

Powers: 1) Together with an application for a closure certificate, the holder of a prospecting or mining right may apply for the transfer of environmental liabilities and responsibilities. 2) The Minister may transfer environmental liabilities and responsibilities specified in the EMP to a competent person (outlined in reg 59). 3) When deciding to transfer environmental liabilities and responsibilities, the Minister of minerals may consult with “relevant government departments” or organs of state that administer a law relating to the environment.

Link to ecological infrastructure concept: Not explicit.

Questions: 1) If any of the mines in the Carolina catchment applied for a closure certificate, did they also apply for the transfer of environmental liabilities and responsibilities? 2) If transfer were granted, do the persons taking them on meet the competence specifications in reg 59? 3) If the Minister of minerals granted the transfer, with what other State departments did he consult? 4) Did the transfer of environmental liabilities and responsibilities go together with a reduction of the financial provision for rehabilitation?

Comments: There are many cases in which the transfer of environmental liabilities and responsibilities has gone hand in hand with revising the scope of these liabilities down.

3.8 Notification obligations to DWAF relating to mines and mining-related activities

Legal authority: Regulation 2, GN704

Duties: 1) Any person intending to start a new mine or mining-related activity (including loading and off-loading zones) must notify the Dept of Water Affairs of this intention 14 days prior to starting. 2) In person in control of an existing mine or mining-related activity must submit a copy of any amendments to the Dept; notify the Dept of any intention to cease the operation of a mine or a particular mining-related activity; and notify the Dept by the fastest means possible of any emergency incident or potential emergency incident involving a water resource.

Link to ecological infrastructure concept: Not explicit.

Questions: 1) Were these notification obligations complied with prior to the crisis? 2) Was notice in accordance with these obligations given when the crisis struck? 3) Post the crisis, have mines in the area been more diligent in meeting their notice obligations? 3) Have criminal charges been laid where there has been non-compliance?

Comments: These rules are essentially about ensuring that the Dept of Water Affairs, as the principle regulator, is informed of mining-related activities. A possible weakness is that the rules do not require mining proponents to notify the catchment management agency, where one has been specified. Non-compliance with this regulation is a criminal offence.

3.9 Locality restrictions relating to water resources

Legal Authority: Regulation 4, GN704

Duties: 1) No person in control of a mine or mining-related activity may build certain structures (e.g. residue deposits, dams) within the 1:100 year flood-line or within a horizontal distance of 100 metres from any watercourse or estuary, borehole or well, or on ground likely to become water-logged, undermined, unstable or cracked. 2) No person in control of a mine or mining-related activity may carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood-line or within a horizontal distance of 100 metres from any watercourse or estuary, whichever is the greatest. 3) No person in control of a mine or mining-related activity may place or dispose of any residue or substance which causes or is likely to cause pollution of a water resource, in the workings of any underground or opencast mine excavation, prospecting diggings, pit or any other excavation. 4) No person in control of a mine or mining-related activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood-line of any watercourse or estuary.

Powers: 1) The Minister of water may in writing authorise an exemption from any of these substantive rules.

Link to ecological infrastructure concept: These provisions are simply about protecting water resources based on assumptions about when flood events occur. Doesn't specifically advance ecological infrastructure concept.

Questions: 1) Were these substantive rules observed by all the mines operating within the Carolina catchment area? 2) Did the Minister of water affairs authorise an exemption from any of these rules in writing? 3) Have criminal charges been laid where there has been non-compliance?

Comments: These rules are good to have but they are also in danger of constituting the lowest common denominator for pollution prevention efforts. Climate change is also driving the frequency of flood events. The good thing about all the substantive rules in the GN704 regs is that they apply to any person "in control", hence they would also apply to contract miners. Non-compliance with this regulation is a criminal offence. All of the rules in GN704 discussed below are "stand-alone"; i.e. they apply over and above any measures that may have been specified in an EMP, environmental authorisation or water use license.

3.10 Restrictions on use of material

Legal authority: Regulation 5, GN 704 Regulations

Duties: 1) No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource.

Powers: 1) The Minister of Water Affairs may in writing authorise an exemption from this rule.
Link to ecological infrastructure concept: This provision seems to be about preventing the use of materials that can cause pollution when they are brought into contact with water. Doesn't specifically advance ecological infrastructure concept.

Questions: 1) Was this substantive rule observed by all the mines operating within the Carolina catchment area? 2) Did the Minister of water affairs authorise an exemption from this rule in writing? 3) Have criminal charges been laid where there has been non-compliance?

Comments: A good to have rule, it would be better if the regs were more specific about the most damaging materials. Non-compliance with this regulation is a criminal offence.

3.11 Duty to maintain separate clean and dirty water systems

Legal authority: Regulation 6, GN 704 Regulations

Duties: 1) Every person in control of a mine or mining-related activity must establish separate clean and dirty water systems around the mine or activity that meet the technical specifications set out in the regulations.

Powers: 1) The Minister of water may in writing authorise an exemption from this rule.
Link to ecological infrastructure concept: This provision is about trying to prevent dirty water coming into contact with clean water. Doesn't specifically advance ecological infrastructure concept.

Questions: 1) Was this substantive rule observed by all the mines operating within the Carolina catchment area? 2) Did the Minister of water affairs authorise an exemption from this rule in writing? 3) Have criminal charges been laid where there has been non-compliance?

Comments: A good to have rule. Non-compliance with this regulation is a criminal offence.

3.12 Reasonable measures to protect water resources

Legal authority: Regulation 7, GN 704 Regulations

Duties: 1) Every person in control of a mine or mining-related activity must prevent waste water or pollution causing substances from entering a water resource either by natural flow or by seepage and must retain and collect the waste water or substance. 2) Every person in control of a mine or mining-related activity must design, modify, locate, construct and maintain all water systems, including residue deposits, in any area so as to prevent the pollution of any water resource through the operation or use thereof and to restrict the possibility of damage to the riparian or in-stream habitat through erosion or sedimentation, or the disturbance of vegetation, or the alteration of flow characteristics. 3) Every person in control of a mine or mining-related activity must effectively minimise the flow of any surface water or floodwater into mine workings, opencast workings, etc. through cracked or fissured formations, subsided ground, sinkholes, outcrop excavations, adits, entrances or any other openings. 4) Every person in control of a mine or mining-related activity must manage residue stockpiles and deposits, tailings etc. in a manner that they will not fail or become unstable. 5) Every person in control of a mine or mining-related activity must prevent the erosion or leaching of materials from any residue deposit or stockpile from any area and contain material or substances so eroded or leached in such area by providing suitable barrier dams, evaporation dams or any

other effective measures to prevent this material or substance from entering and polluting any water resources.

Powers: 1) The Minister of water may in writing authorise an exemption from any of these substantive rules.

Link to ecological infrastructure concept: These provisions are simply about protecting water resources. Doesn't specifically advance ecological infrastructure concept.

Questions: 1) Were these substantive rules observed by all the mines operating within the Carolina catchment area? 2) Did the Minister of water affairs authorise an exemption from any of these rules in writing? 3) Have criminal charges been laid where there has been non-compliance?

Comments: These rules provide an additional indication of what "reasonable measures" might be in terms of ss 19 of the NWA and 28 of the NEMA. Non-compliance with this regulation is a criminal offence.

3.13 Security measures around water resources

Legal authority: Regulation 8, GN 704 Regulations

Duties: 1) Every person in control of a mine or mining-related activity must effectively fence-off any impoundment or dam containing poisonous, toxic or injurious substances and erect warning signs at prominent locations. 2) Every person in control of a mine or mining-related activity must ensure access control in any area used for stockpiling or disposal of residue or harmful substances to protect measures taken for pollution control in terms of these regulations. 3) Not allow the use of this area for any other purpose if it is likely to cause the pollution of a water resource. 4) Every person in control of a mine or mining-related activity must protect any existing pollution control measures or replace any existing pollution control measures deleteriously affected, damaged or destroyed by the removing or reclaiming of materials from any residue deposit or stockpile, and establish additional measures for the prevention of pollution of a water resource which might occur, is occurring or has occurred as a result of such operations.

Powers: 1) The Minister of water may in writing authorise an exemption from any of these substantive rules.

Link to ecological infrastructure concept: These provisions are about protecting the other measures put in place to prevent pollution. Doesn't specifically advance ecological infrastructure concept.

Questions: 1) Were these substantive rules observed by all the mines operating within the Carolina catchment area? 2) Did the Minister of water affairs authorise an exemption from any of these rules in writing? 3) Have criminal charges been laid where there has been non-compliance?

Comments: These rules provide an additional indication of what "reasonable measures" might be in terms of ss 19 of the NWA and 28 of the NEMA. Non-compliance with this regulation is a criminal offence.

3.14 Temporary or permanent cessation of mine or activity

Legal authority: Regulation 9, GN 704 Regulations

Duties: 1) When there is a temporary or permanent cessation of a mining operation or mining-related activities, the person in control must ensure that all pollution control measures have been designed, modified, constructed and maintained so as to comply with the GN704 regulations. 2) Any person in control of a mine or activity must ensure that the in-stream and riparian habitat of any water resource, which may have been affected or altered by a mine or activity, is remedied so as to comply with these regulations.

Powers: 1) The Minister of water may in writing authorise an exemption from any of these substantive rules. 2) The minister of water affairs may request a copy of any surface or underground plans upon the permanent or temporary cessation of mining activities.

Link to ecological infrastructure concept: These provisions are about ensuring the integrity of pollution control measures even when there has been a permanent or temporary cessation of such and about remedying the instream and riparian habitat of a water resource. Doesn't specifically advance ecological infrastructure concept.

Questions: 1) Were these substantive rules observed by all the mines operating within the Carolina catchment area? 2) Did the Minister of water affairs authorise an exemption from any of these rules in writing? 3) Have criminal charges been laid where there has been non-compliance?

Comments: There is no reference in these regulations to the financial provision for rehabilitation, which could be a weakness. Non-compliance with this regulation is a criminal offence.

3.15 Duty to rehabilitate coal residue deposits

Legal authority: Regulation 11, GN 704 Regulations

Duties: 1) Any person mining or establishing coal residue deposits must rehabilitate such residue deposits so that all residue deposits are compacted to prevent spontaneous combustion and minimise the infiltration of water; and the rehabilitation of the residue deposits is implemented concurrently with the mining operation.

Powers: 1) The Minister of water may in writing authorise an exemption from this substantive rules.

Link to ecological infrastructure concept: These provision establishes a specific rule relevant to the rehabilitation of coal residue deposits. Doesn't specifically advance ecological infrastructure concept.

Questions: 1) Was this substantive rule observed by all the mines operating within the Carolina catchment area? 2) Did the Minister of water affairs authorise an exemption from this rule in writing? 3) Have criminal charges been laid where there has been non-compliance?

Comments: Non-compliance with this regulation is a criminal offence.

3.16 Environmental authorisation

Legal authority: Section 24–s24S, NEMA.

Duties: 1) Any person who carries on a listed or specified activity must apply for an environmental authorisation, generally from the relevant provincial environmental authorities (this duty did not apply to prospecting or mining as such, but rather to ancillary activities such as constructing roads, building certain structures relating to water, removing indigenous vegetation; etc). 2) For purposes of obtaining the environmental authorisation, the person would have to appoint an independent environmental assessment practitioner to conduct a

thorough environmental impact assessment of the activity. This would involve public participation as well. 3) Upon obtaining an environmental authorisation the holder would have to comply with any specified conditions.

Powers: 1) The Minister of environment and the provincial environmental MECs are empowered to specify the activities requiring an environmental authorisation. 2) The competent authority for the approval of environmental authorisations for listed activities is generally the provincial department responsible for the environment. 3) The competent authority can also approve the “rectification” of failure to obtain an environmental authorisation, upon payment of an administrative fine not exceeding R1 million (at that time).

Link to ecological infrastructure concept: Environmental impact assessment was not generally developed around the concept of ecological infrastructure. So the conceptual tools of this form of regulation rather centre on “impacts” than on valuation of the environment either for public or private purposes.

Questions: 1) Were any of the mines operating in the Carolina catchment area required to obtain an environmental authorisation? Did any of the activities necessitating an environmental authorisation relate to water resources? Were these authorisations in fact obtained? 2) Did any of the mines apply for a rectification of a failure to obtain an environmental authorisation? 3) If the mines did not obtain an environmental authorisation, were criminal charges instituted in line with s 24F (as was then the rule)?

Comments: After the EMP, the environmental authorisation (under NEMA) and the water use license (under the NWA) are the other major regulatory tools for regulating the environmental impacts of mining. The environmental management inspectorate enforces the rules around environmental authorisations (see section E below).

3.17 Statutory duty of care relating to the environment

Legal authority: Section 28, NEMA.

Duties: 1) Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment. Without limiting the generality of the meaning of “every person” it includes (a) an owner of the land or premises; (b) a person in control of land or premises; (c) a person who has a right to use the land or premises on which or in which any activity or process is or was performed or undertaken; or any other situation exists, which causes, has caused or is likely to cause significant pollution or degradation of the environment. This duty is retrospective; i.e. it applies to a significant pollution or degradation that occurred before the commencement of NEMA, arises or is likely to arise at a different time from the actual activity that caused the contamination; or arises through an act or activity of a person that results in a change to pre-existing contamination. The “reasonable measures” a person may be required to undertake include investigating, assessing and evaluating the impact on the environment; ceasing, modifying or controlling any act, activity or process causing the pollution or degradation; containing or preventing the movement of pollutants or the causant of degradation; eliminating any source of the pollution or degradation; or remedying the effects of the pollution or degradation.

Powers: This statutory duty of care is subject to the power of the D-G of the Dept of environmental affairs, or a provincial HoD to direct that the person take reasonable measures (see further section C below).

Link to ecological infrastructure concept: To the extent that this section also allows the authorities to recover costs for remedial measures where the person does not act (see further section E below), one could say it is recognising the value of the environment in some sense. Questions: 1) In the case of each mine operational in the Caroline catchment, what was their relationship to the land? Who other than the mines was an owner, user or controller of the land? 2) What “reasonable measures” did the mines put in place to deal with the pollution and ecological degradation of the water resources?

Comments: This section (which has its parallel in s 19 of the NWA) is an extremely important tool in the arsenal of environmental regulation. Significant about it is that it is not specifically linked to the mining rights holder (so mining companies cannot circumvent this duty by contracting mining out to another company) and it has retrospective application.

3.18 Notification obligations relating to emergency incidents

Legal authority: Section 30, NEMA.

Duties: 1) There is a duty vesting in a “responsible person” (a person who causes the incident, or who owns or was in control of the hazardous material at the time the incident occurred) or his or her employer (if the incident occurred during the course of the person’s employment to notify the D-G of environment, SAPS, the provincial head of environment or the municipal head of environment; and any persons who whose health may have been affected of an “incident”. An “incident is defined as an “unexpected, sudden and uncontrolled release of a hazardous substance, including from a major emission, fire or explosion, that causes, has caused or may cause significant harm to the environment, human life or property.” 2) The responsible person must take all reasonable measures to contain and minimise the effects of the incident, institute clean-up procedures, remedy the effects and undertake an immediate and long-term assessment of the incident.

Link to ecological infrastructure concept: Not explicit.

Questions: 1) Have any of the mines operational in the Carolina catchment notified the authorities of an incident? 2) If so, what happened thereafter?

Comments: I have head of this provision being used at least once in the Ermelo area by the Anker coal.

3.19 Existing lawful water use

Legal authority: Sections 32–35, National Water Act

Rights: An existing lawful water use gives a person who uses water in any of the ways specified in s 21 of the NWA a right to continue with the water use. An existing lawful water use took place two years prior to the entry into force of the NWA and would have been authorised by the law immediately in force prior to the NWA.

Duties: The holder of an existing lawful water use must follow any existing conditions or obligations attaching to that use.

Powers: 1) The responsible authority can request that the existing lawful water use be converted to a license. 2) The responsible authority may verify the lawfulness and extent of the existing lawful water use.

Link to ecological infrastructure concept:

Questions: 1) Have any of the mines in the Carolina catchment claimed that the existing lawful use is the basis of their entitlement to use water? 2) If so, did the responsible authority (Dept of Water Affairs?) verify the extent and lawfulness of the right? 3) What conditions were attached to the existing lawful water use?

Comments: It has been said that a number of mines have justified their water use on the basis of taking over the water uses of the farms on which they operate, so this could potentially also serve as an water resource management tool.

3.20 Water use license

Legal authority: Sections 27–29, National Water Act

Rights: A water use license gives the holder a right to use water in any of the ways specified in s 21 of the NWA, though the license is no guarantee of the statistical probability of water, the availability of water, or the quality of water.

Duties: The holder must comply with the conditions attached to the license.

Powers: The responsible authority may attach a broad range of conditions to the license, including conditions relating to water conservation measures, monitoring and analysis of water use, requiring the preparation of and adherence to a water management plan.

Link to ecological infrastructure concept: The NWA appears to be better than the other Acts in putting environmental resources “to work” whilst also seeking to protect their ecological integrity.

Questions: 1) Do the mines in the Carolina catchment area have water use licenses? 2) If so, what conditions are specified regarding the management of the water resources that contributed to the Carolina crisis?

Comments: The water use license is directly relevant to the crisis that unfolded in Carolina as it is the most specific environmental management tool applicable to water resources in this context. It is a criminal offence to fail to obtain a water use license, where this is required; or to fail to comply with any condition attached to a license.

3.21 Security for the protection of the water resource or property

Legal authority: Section 30, National Water Act

Powers: 1) The responsible authority may require the applicant to give security for any obligation or potential obligation arising from a water use license and which is necessary to protect the water resource and property. 2) The responsible authority may determine the type, extent and duration of any security required. Security can take the form of a letter of credit from the bank, a surety or bank guarantee, a bond, insurance policy, or any other appropriate form of security. The duration of the security may extend beyond the date of the license.

Rights: A person may apply in writing at any time to have the security given amended or discharged.

Link to ecological infrastructure concept:

Questions: 1) Were any of the mines in the Carolina catchment required to provide the security contemplated in this section? 2) If so, did they provide it?

Comments: This appears to be the NWA's equivalent of "financial provision" for rehabilitation under the MPRDA.

3.22 Statutory duty of care relating to water resources

Legal authority: Section 30, National Water Act

Powers: 1) The responsible authority may require the applicant to give security for any obligation or potential obligation arising from a water use license and which is necessary to protect the water resource and property. 2) The responsible authority may determine the type, extent and duration of any security required. Security can take the form of a letter of credit from the bank, a surety or bank guarantee, a bond, insurance policy, or any other appropriate form of security. The duration of the security may extend beyond the date of the license.

Rights: A person may apply in writing at any time to have the security given amended or discharged.

Link to ecological infrastructure concept:

Questions: 1) Were any of the mines in the Carolina catchment required to provide the security contemplated in this section? 2) If so, did they provide it?

Comments: This appears to be the NWA's equivalent of "financial provision" for rehabilitation under the MPRDA.

3.23 Control of emergency incidents

Legal authority: Section 30, National Water Act

Duties: 1) There is a duty vesting in a "responsible person" (a person who causes an incident, or who owns or was in control of the substance at the time the incident occurred) or his or her employer (if the incident occurred during the course of the person's employment) to notify the Department of Water Affairs, SAPS or the relevant fire department, or the relevant catchment agency. An "incident" is defined as "any incident or accident in which a substance pollutes or has the potential to pollute a water resource or has or is likely to have a detrimental effect on a water resource." 2) The responsible person must take all reasonable measures to contain and minimise the effects of the incident, undertake clean-up procedures, remedy the effects, and undertake such measures as the catchment management agency may verbally or in writing specify.

Link to ecological infrastructure concept: Not explicit.

Questions: 1) Have any of the mines operational in the Carolina catchment notified the authorities of an incident? 2) If so, what happened thereafter?

Comments: This provision is very similar in form to s 30 of the NEMA, so it could be used in the alternative or in conjunction with that provision. There are subtle differences between the two; e.g. in the definition of "incident" and in the range of parties that should be notified.

3.24 Duties of water services authorities

Legal authority: Sections 11–21, WSA

Duties: 1) Water services authorities (essentially municipalities) are responsible for ensuring access to water services. Access should be progressively more efficient, affordable, economical and sustainable. Water services include water supply and sanitation services. 2)

In emergency situations a water services authority must take reasonable steps to provide basic water supply and basic sanitation services to any person within its area of jurisdiction, at the cost of that authority. 3) A water services authority must prepare a water services development plan that includes, *inter alia*, details on existing industrial water use within the area of the jurisdiction of the water services authority, of existing industrial effluent disposed of within the authority's area of jurisdiction, and the future provision of water services including water for industrial use and the disposal of industrial effluent. The development and adoption of a water services development plan involves public participation. 4) A water services authority must make bylaws that specify the standard of the services, including standards relating to water for industrial use.

Link to ecological infrastructure concept: None.

Questions: 1) Who was the water services authority responsible for providing water to the Carolina residents? 2) What did the water services development plan of this authority say about the sources of mine water pollution in the catchment? 3) What were the water services authority's bylaws on the sources of 'industrial water' in the catchment? Is the mine water regarded as industrial water? 4) Did the water services authority take reasonable steps to provide basic water supply when the disaster struck?

Comments: The WSA is clear that 'industrial use' includes water used for mining.

4 MONITORING, INSPECTIONS AND POWERS OF STATE INTERVENTION

4.1 Performance assessment reports of EMP (including final performance assessment report preceding closure)

Legal authority: Regulation 55, MPRDA regulations

Duties: 1) A permit or rights holder under the MPRDA must (a) conduct monitoring on a continuous basis; (b) conduct performance assessments of the EMP, as required; and (c) compile and submit a performance assessment report to the minister of mineral resources. 2) The frequency of performance assessment reporting is every two years, or as specified in the EMP, or as agreed with the minister. A performance assessment report must be in the format specified by published guidelines and contain at least the information specified in reg. 55(3). 3) The permit or rights holder must comply with any of the minister's directions after he considers the performance assessment report. 4) When the holder intends closing an operation a final performance assessment report must be compiled and submitted to the minister. This report must specify that the requirements of relevant legislation have been complied with, that the closure objectives specified in the EMP have been met; that residual impacts have been identified; and that the risk of latent impacts have been identified and quantified and arrangements for the management thereof assessed. The final performance assessment report may be submitted at the same time as the application for a closure certificate.

Powers: 1) The permit or rights holder may appoint an independent competent person to conduct the assessment. 2) The minister of mineral resources considers the assessment and may direct the holder of the permit or right to repeat the exercise, to provide supplementary information, or to appoint an independent competent person to conduct the assessment. 3) The minister of mineral resources may disclose a performance assessment report submitted by the holder to any person upon request.

Link to ecological infrastructure concept: Not explicit, situated within the EIA model of environmental management.

Questions: 1) Did the mines in the Carolina catchment area submit performance assessment reports to the minister on a regular basis? 2) What did those performance assessment reports say? 3) For the mines that are non-operational in the Caroline catchment area, were final performance assessment reports submitted to the minister? 4) what did such reports specify about residual and latent environmental impacts?

Comments: This is a key monitoring tool to ensure proper compliance with the EMP. It may be linked to the minister of minerals' other powers, such as powers of intervention in terms of s 45 or 46 of the MPRDA or the power to direct an amendment of the EMP.

4.2 Inspections (with and without a warrant)

Legal authority: Sections 91–92, MPRDA

Powers: 1) The minister of mineral resources may designate a variety of officials as “officers” for purposes of carrying out routine inspections. 2) Authorised officers may without a warrant and during office hours conduct routine inspections; i.e. enter the prospecting or mining area for purposes of inspecting any activity, process or operation; and ask to examine books, records or statements. 3) Authorised officers may under the authority of a warrant enter a prospecting or mining area if they believe any provision of the Act is being contravened; direct the person in control or employed in the prospecting or mining area to furnish information or assist with the investigation; inspect books, records, statements and documents and make copies; examine any appliance or material substance found in the area; take samples; seize any material, substance, book, record, statement or other document.

Link to ecological infrastructure concept: None

Questions: 1) Were routine inspections of the mining operations in the Caroline catchment area conducted? 2) Were any inspections ever conducted that required the issue of a warrant? If so, what happened subsequent to the inspection?

Comments: These provisions would have applied at the time the crisis in Carolina occurred and they are still in force. However from 18 December 2014, inspections relating to the environmental authorisation will be conducted by the environmental mineral resource inspectorate (under s 31 of the NEMA).

4.3 Orders of mineral inspection officers

Legal authority: Section 93, MPRDA

Powers: 1) If an authorised officer believes or suspects there has been a contravention of the MPRDA or any other law (e.g. mine health and safety), or an condition of an environmental authorisation, he or she may direct the rights holder (a) to take immediate rectifying steps; and (b) order that the operations be suspended or terminated or give such other instructions connected therewith as may be necessary. 2) The D-G of mineral resources must confirm or set aside any order given by an authorised officer within 60 days of it being issued. If there is no confirmation of the order, it lapses.

Link to ecological infrastructure concept: None.

Questions: 1) Were any orders under s 93 issued to mines operating in the Carolina catchment? 2) If so, what was the content of those orders? 3) Were any mines in the Carolina catchment ever orders to suspend or terminate their operations?

Comments: This measure was available to the DMR at the time the Carolina crisis occurred. The power is broad-ranging in its application; e.g. applicable to mine health and safety and

also environmental infractions. From 18 December 2014, the chief instrument of the new environmental mineral resource inspectorate will be the compliance notice under the NEMA.

4.4 Minister of minerals' power to institute urgent remedial measures

Legal authority: Section 45, MPRDA

Powers: 1) The minister of mineral resources may direct a rights holder under the MPRDA to investigate, evaluate, assess and report on the impact of any pollution or ecological degradation; take the measures specified in a directive; and complete such measures before a given date. The trigger for the minister's power is prospecting or mining operations causing or resulting in ecological degradation, pollution or environmental damage that may be harmful to the health or well-being of anyone and that requires urgent remedial measures. 2) If the holder fails to comply with the directive, the minister may take the measures necessary to protect the health and well-being of any affected person or to remedy ecological degradation or stop pollution of the environment. 3) The minister may apply to the High Court (*ex parte* application) for an order to seize and sell such property of the holder as may be necessary to cover the costs of implementing urgent remedial measures. Otherwise, the minister may use funds appropriated by Parliament to implement the measures. 4) The minister may recover an amount equal to the funds necessary to fully implement the measures from the holder concerned.

Duties: 1) Before implementing any measures the minister must afford the rights holder an opportunity to make representations.

Link to ecological infrastructure concept: None

Questions: 1) Did the minister of mineral resources ever issue a directive to the mines operating in the Carolina catchment area to undertake the urgent remedial measures contemplated in s 45? 2) Did the minister of mineral resources ever initiate urgent remedial measures, particularly after the occurrence of the Carolina crisis? 3) If so, was the minister able to recover the costs from the rights holders?

Comments: This is the MPRDA counterpart to s 19 of the NWA and s 28 of the NEMA. The unusual aspect of this provision is that it is specifically triggered by impacts that are harmful to health or well-being (this would clearly have been the case when Carolina residents' drinking water was polluted), and that the minister can seize and sell property of the rights holder in order to undertake urgent remedial measures on behalf of the state. I have never heard of this provision being used.

4.5 Minister of minerals' power to remedy environmental damage

Legal authority: Section 46, MPRDA

Powers: 1) If the minister of mineral resources establishes that urgent remedial measures need to be taken to prevent pollution or ecological degradation of the environment, but the holder of the right is deceased or cannot be traced, or if a juristic person has ceased to exist, the minister may instruct the regional manager to take the necessary measures. The measures, if taken, must be funded from the financial provision for rehabilitation or where there is a shortfall, from monies appropriated by Parliament.

Duties: 1) Upon completion of the urgent remedial measures, the regional manager must apply to the registrar in the mine titles deeds registry to have the title deed of the land endorsed to that effect that the land has been remedied.

Link to ecological infrastructure concept: None

Questions: Has the minister of mineral resources instructed the regional manager to take urgent remedial measures in respect of the ownerless and abandoned mines in the Carolina catchment?

Comments: This provision empowers the minister of mineral resources to act where a rights holder cannot be traced (for her powers in terms of s 45 are otherwise dependent on the rights holder first failing to act).

4.6 Minister of minerals' power to suspend or cancel rights

Legal authority: Section 47, MPRDA

Powers: 1) The minister of mineral resources may cancel or suspend any right or permit under the MPRDA if the holder is conducting operations in contravention of the MPRDA; breaches any material term or condition of the right; is contravening the approved EMP/environmental authorisation; has submitted inaccurate, incorrect or misleading information in connection with any matter required to be submitted under the Act. 2) The minister must direct the holder to take specified measures to remedy any contravention, breach or failure.

Duties: 1) Before cancelling or suspending a right the minister must follow certain rules relating to procedural fairness (written notice to the holder, reasons for the decision, allowing the holder a reasonable opportunity to show why the right should not be cancelled or suspended).
Link to ecological infrastructure concept: None

Questions: 1) Did the minister of mineral resources ever issue a written notice to the mines operating in the Caroline catchment advising them of a contravention of the MPRDA and threatening to cancel or suspend their rights? 2) If so, what happened afterwards?

Comments: A rule giving the MPRDA some administrative teeth. Not clear on how extensively it has been used however.

4.7 Technical investigation and monitoring (GN704)

Legal authority: Regulation 12, GN704

Powers: 1) The minister of water may, after consulting the ministers responsible for mineral resources and the environment respectively, require any person in control of a mine or activity to arrange for a technical investigation or inspection on any aspect aimed at preventing pollution of a water resource or damage to the in-stream or riparian habitat connected with or incidental to the operation of a mine or activity. This may include an independent review. 2) The water minister may further require any person in control of a mine or activity to submit a programme of implementation to prevent or rectify any pollution of a water resources; etc. 3) The minister of water affairs may direct any person in control of a mine or activity to implement a compliance monitoring network to monitor the programme of implementation by establishing, operating and maintaining monitoring installations of specified types and at specified locations.
Duties: Any person in control of a mine or activity must submit plans, specifications and design reports approved by a professional engineer to the minister of water affairs, not later than 60 days prior to commencement of activities relating to (a) the construction of any surface dam for the purpose of impounding waste, or water containing waste or slurry; (b) the implementation of any pollution control measures at any residue deposit or stockpile; and (c) the implementation of any water control measures at any residue deposit or stockpile.

Link to ecological infrastructure concept: None

Questions: 1) Did the minister of water ever order any of the mines operating in the Carolina catchment to conduct a technical investigation and develop a programme of implementation and compliance and monitoring network? 2) Did the persons in control of the mines in the Carolina catchment submit the plans, specifications and design reports relating to the various structures and pollution and water control measures?

Comments: The minister of water is probably more likely to use s 19 of the NWA than this provision for technical monitoring in the GN704 regulations. These regulations are also under review and are likely to be replaced. However they were in force when the Carolina crisis struck.

4.8 Monitoring and performance assessment of environmental authorisation

Legal authority: Section 24Q, NEMA

Duties: An environmental authorisation must include general terms and conditions that require the holder to conduct such monitoring and performance assessment of the approved EMP as may be prescribed.

Link to ecological infrastructure concept: None

Questions: None

Comments: This provision of the NEMA only enters into force from 18 December 2014. On its own it is also without substance or teeth as the monitoring and performance assessment rules will be set out in the regulations or the EMP.

4.9 Statutory duty of care directives (NEMA)

Legal authority: Section 28, NEMA

Duties: "Everyone" has a statutory duty of care in relation to the environment (see Section D, item 18 above).

Powers: 1) If a person who is causing, has caused or may cause significant pollution or degradation of the environment fails to take reasonable measures to stop such pollution or degradation from occurring, D-G or a provincial HoD may direct the person to cease any activity, operation or undertaking; undertake an impact assessment of specific activities; commence, diligently continue or complete certain measures within a specified date. 2) If a person fails to undertake or inadequately undertakes the measures specified in the directive, the D-G or a provincial HoD may take reasonable measures to remedy the situation or apply to a competent court for appropriate relief. 3) The D-G or the provincial HoD may recover costs for the measures, before they are implemented, from a range of persons including any person that negligently failed to prevent from activity or process from being undertaken or the polluting situation to come about. The costs claimed must be reasonable.

Rights: A person may apply to a court for an order directing the D-G or a provincial HoD to issue a directive to a person causing pollution or ecological degradation, essentially where the administrative heads have failed to act.

Link to ecological infrastructure concept: None

Questions: 1) Has the D-G for environment nationally or the provincial HoD issued a s 28 directive to any of the mines operating in the Carolina catchment? 2) Has the D-G or a provincial HoD initiated the taking of reasonable measures where the person to whom the directive has been issued has failed to respond appropriately?

Comments: This is one of the key enforcement tools in the NEMA. It is helpful in that it is NOT linked to a person being a rights holder (so difficult for companies to avoid, for instance, by contracting the mining operation out to third parties). It applies by virtue of the person's relationship to a particular piece of land.

4.10 Statutory duty of care directives (NWA)

Legal authority: Section 19, NWA

Duties: "Everyone" has a statutory duty of care in relation to water resources (see Section D, item 23 above).

Powers: 1) If a person who is causing, has caused or may cause significant pollution or degradation of a water resource fails to take reasonable measures to stop such pollution or degradation from occurring, the catchment management agency may direct the person to diligently continue or complete certain measures within a specified date. 2) If a person fails to undertake or inadequately undertakes the measures specified in the directive, the catchment management agency may take the measures it considers necessary to remedy the situation. 3) The catchment management agency may recover all costs incurred as a result of it taking remedial measures jointly and severally from a range of persons. The costs claimed must be reasonable. 3) The catchment management agency may also claim from any person who has benefitted from the implementation of the remedial measures. 4) The catchment management agency may apportion the liability for the cost of remedial measures.

Link to ecological infrastructure concept: None

Questions: 1) Has a catchment management agency (or the Dept of Water Affairs if no agency has been established) issued a s 19 directive to any of the mines operating in the Carolina catchment? 2) Has catchment management agency initiated remedial measures where the person to whom the directive has been issued has failed to respond appropriately?

Comments: One of the most important enforcement tools in the NWA. Section 19 directives were successfully applied to continue pumping operations in the KOSH basin (*Harmony Gold* series of cases).

4.11 Powers of environmental management inspectors

Legal authority: Sections 31A – 31Q (NEMA)

Powers: 1) Environmental management inspectors (EMIs) have range of general powers that relate to questioning persons, inspecting documents and records, taking samples, digging or boring into the soil, taking photographs; etc. As part of these general powers they were empowered to issue written notices that compel persons to answer questions. 2) EMIs may seize items in line with the provisions of the Criminal Procedure Act, with some interesting additional powers, such as the power to seize a vehicle by removing a part and thus immobilising it. 3) EMIs may stop, enter and search vehicles, vessels and aircraft without a warrant. 4) EMIs may without a warrant conduct routine inspections of land, buildings and premises. With a warrant, they may also enter and inspect residential premises. 5) EMIs may issue compliance notices that set out details of the conduct constituting non-compliance, any steps a person must take and the period within which those steps must be taken, and things that a person may not do for a particular period. 6) If a person fails to comply with a compliance notice the EMI must report this fact to the minister of environment or the MEC for environment. The minister or MEC may then vary or revoke the environmental authorisation.

Duties: A person who receives a compliance notice issued by an EMI must comply with its provisions within the specified time period.

Rights: A person to whom a compliance notice has been issued may object to the notice.

Link to ecological infrastructure concept: None

Questions: 1) Were the EMIs involved in inspecting the areas affected by the water crisis in Carolina at any time prior to, during or after the crisis hit? 2) Were compliance notices issued to any of the mines operative in the Carolina catchment? If so, what were the conditions of the compliance notice?

Comments: The EMIs are the “green scorpions”, i.e. the key enforcement agents for the provisions of the NEMA. At the time of the Carolina crisis, they would have had powers to enforce the provisions of the environmental authorisation required for activities ancillary to prospecting and mining. From December 2014, the minister of minerals will be empowered to appoint environmental mineral resources inspectors, which will have the same powers of EMIs within the scope of their specified mandate.

4.12 Interventions relating to water services institutions

Legal authority: Sections 62–63, WSA

Powers: 1) The minister of water and sanitation and any relevant province must monitor the performance of every water services institution, including compliance with all applicable national standards. 2) If a water services authority has not effectively performed any function imposed on it by the WSA, the minister may, in consultation with the minister responsible for co-operative government and traditional affairs, request the province to intervene in accordance with s 139 of the Constitution. 3) If within a reasonable time after the request being made the Province has unjustifiably failed to intervene or has intervened ineffectively, the minister of water affairs may assume control of the function subject to the extensive procedural safeguards outlined in the WSA (which derive, in turn, from the Constitution).

Duties: 1) Every water services institution must co-operate with the minister in the monitoring of its performance by, for instance, furnishing information and allowing access to books, records and physical assets.

Link to ecological infrastructure concept: None

Questions: 1) What evidence exists to affirm that the minister of water affairs and the relevant provincial functionaries were monitoring the relevant water services institutions implicated in the Carolina crisis? 2) Did the minister of water and sanitation issue the province with a formal request to intervene in the situation? 3) Did the minister take over the function of providing water to the Carolina community?

Comments: These powers of intervention have been criticised as particularly cumbersome and unwieldy, preventing effective action from the national and provincial government where there are failures at the local level (a debate on this topic was hosted by the Water Research Commission earlier in 2014).

4.13 Inspection of water services works

Legal authority: Section 80, WSA

Powers: 1) Any person authorised in writing by the minister of water and sanitation, the province or a water services institution may at any reasonable time and *without prior notice* enter any property and inspect any water services work in order to ascertain whether the WSA, its regulations or a directive made under it is being complied with. Restrictions apply however

to the entry of dwellings. 2) After reasonable notice to the owner or occupier of the property an authorised person may undertake various actions aimed at repairing, maintaining, removing or demolishing a water services work.

Link to ecological infrastructure concept: This provision gives the authorities powers to enter properties so as to maintain the 'gray' infrastructure associated with water services. The definition of 'water services work' refers to gray, not green infrastructure.

Questions: 1) What water services works (dams, reservoirs, pumphouses, boreholes, pumping installations; etc) were implicated in the Carolina crisis? 2) Were any inspections of these works carried out? If so, by whom, and how was their failure implicated in the generation of the crisis?

Comments: This provision can potentially be criticised on the basis that it only confers powers to inspect and not an actual duty to maintain water services works.

5 CRIMINAL OFFENCES AND POWERS OF COURT IN CRIMINAL MATTERS

5.1 Right of appeal under NEMA

Legal authority: Section 43, NEMA

Rights: 1) Any person has a right to appeal to the minister of environment against a decision taken by any person acting under a power delegated by the minister under NEMA or a SEMA. 2) Any person has a right to appeal to the MEC against a decision taken by any person acting under a power delegated by that MEC under NEMA or a SEMA.

Link to ecological infrastructure: Not explicit.

Questions: 1) When the environmental authorisations were granted for the listed activities associated with the mines in the Carolina catchment, was the granting of the environmental authorisation appeals? 2) If so, what were the grounds of appeal?

Comments: These provisions establish an administrative appeal and would have allowed for civil society intervention in the granting of environmental authorisations to the mines operating in the Carolina catchment.

5.2 Right of appeal to the Water Tribunal

Legal authority: Section 141(1)(f), NWA

Rights: Any person who has timeously lodged an appeal may appeal to the Water Tribunal against the granting of a water use licence.

Link to ecological infrastructure: None

Questions: 1) Were any appeals to the Water Tribunal lodged against the decision to grant mines operating in the Carolina catchment with a water use licence? 2) If so, what was the outcome of the appeal?

Comments: Section 141 allows for appeals on a variety of grounds. The Water Tribunal has interpreted s 141(1)(f) strictly to apply only to license applications where there has been a public participation process, but this approach was overruled in the *Escarpment Environment Protection* case.

5.3 Right of appeal under the MPRDA

Legal authority: Section 96, MPRDA

Rights: Any person whose rights or legitimate expectations have been materially and adversely affected or who is aggrieved by an administrative decision under the MPRDA may appeal in the prescribed manner to either the D-G of the DMR or the minister of mineral resources.

Link to ecological infrastructure: None

Questions: 1) Were appeals under the MPRDA lodged against the decision to grant mining rights to any of the mines operative in the Carolina catchment? 2) If so, what was the outcome of the appeal?

Comments: The *Bengwenyama* case (CC) clarified that a right of appeal under the MPRDA does exist, though the lodging of an appeal does not suspend the right.

5.4 Criminal offences for non-compliance with GN704 obligations

Legal authority: Regulation 14, GN704

Rights: The National Prosecuting Authority (NPA) may prosecute a person for any of the offences listed in regulation 14. These include the failure to notify the department of water affairs regarding certain activities on a mine, failure to manage clean and dirty water systems, failure to observe the locality and material restrictions; etc.

Link to ecological infrastructure: None

Questions: 1) Were any charges based on the offences listed in regulation 14 of the GN704 regulations laid against any of the mines, their directors, shareholders, or employees following the Carolina crisis? 2) If so, were the charges prosecuted and what was the outcome?

Comments: The penalty for offences under GN704 is an unspecified fine or imprisonment of up to five years. Regulation 14(2) enables an offence of an employee or manager to be imputed to the person in control of the mine and *vice versa*.

5.5 Criminal offences for non-compliance with NEMA obligations

Legal authority: s 24F, s 28(14) and (15), s 34 NEMA

Rights: 1) The NPA may prosecute a person for the failure to obtain an environmental authorisation in respect of a listed activity, to comply with any of the conditions attached to an environmental authorisation, or to fail to comply with or contravene an environmental management programme. 2) The NPA is also empowered to prosecute someone who wrongfully and intentionally or negligently (i.e. with fault) causes environmental pollution or ecological degradation.

Link to ecological infrastructure: None

Questions: 1) Were any charges based on the offences listed in the NEMA laid against any of the mines, their directors, shareholders, or employees following the Carolina crisis? 2) If so, were the charges prosecuted and what was the outcome?

Comments: This represents the law at the time the Carolina crisis occurred. These provisions have since been repealed and replaced by s 49A and 49B of the NEMA. The penalty for an offence under s 24F was a fine of R5 million or imprisonment of 10 years or both. The penalty

for an offence under s 28(14) and (15) was a fine not exceeding R1 million or imprisonment of 1 year or both. In criminal proceedings under the NEMA, if it appears that the offence caused loss or damage to any organ of state or other person (including the cost incurred or likely to be incurred by the organ of state in rehabilitating the environment), the court may summarily enquire into the extent of the damage and make an order for civil damages (without there needing to be a separate civil trial for this. There are provisions in s 34 for the offences of managers, agents and employees to be imputed to the employer and *vice versa*. It also allows for the offences of firms to be imputed to directors.

5.6 Legal standing to enforce laws

Legal authority: Section 32, NEMA

Rights: Any person or group of persons may seek appropriate relief in respect of any breach of threatened breach of any provision in the NEMA, including a principle in chapter 1, or any provision of a SEMA, or any other statutory provision concerned with the protection of the environment. The interests that may be protected by such relief are very broad, extending to anyone acting in the public interest.

Link to ecological infrastructure: Not explicit.

Questions: 1) Did any person or group seek appropriate relief in respect of any breach or threatened breach of the NEMA, etc. in relation to the Carolina crisis? If so, what was the outcome of the case?

Comments: The LHR did become involved in the Carolina matter but it is not clear whether they relied on this provision.

5.7 Private prosecutions

Legal authority: Section 33, NEMA

Rights: Any person may, in the public interest, or in the interest of the protection of the environment institute a conduct a private prosecution in respect of any breach of threatened breach of any duty, other than a public duty resting on an organ of state. The duty may be specified in any national or provincial legislation or bylaw, or any regulation, license, permission or authorisation issued in terms thereof.

Link to ecological infrastructure: Not explicit

Questions: Did any private prosecutions or attempted private prosecutions arise out of the Carolina crisis?

Comments: I have yet to hear of this provision ever being used.

5.8 Criminal offences for non-compliance with NWA obligations

Legal authority: Section 151–154, NWA

Rights: The NPA may prosecute any person for any of the offences listed in s 151 of the NWA. Offences include using water contrary to the provisions of the Act; failure to comply with any condition of a water use license; failing to comply with a directive issued under the Act; unlawfully and intentionally or negligently committing any act or omission that pollutes a water resource or that detrimentally affects a water resource. There are additionally a number of 'procedural' offences (e.g. failing to provide access to books and records; etc).

Link to ecological infrastructure: Not explicit.

Questions: 1) Were any charges based on the offences listed in the NWA laid against any of the mines, their directors, shareholders, or employees following the Carolina crisis? 2) If so, were the charges prosecuted and what was the outcome?

Comments: The penalty for a first conviction for any of these offences is a fine (unspecified) or up to 5 years imprisonment; for a second conviction a fine and/or imprisonment of up to 10 years. Similarly to the NEMA, there are provisions allowing the court to summarily inquire into civil damages (s 152) and to make an order for such damages (s 153); and for the actions of employees and managers to be imputed to employers and *vice versa* (s 154).

5.9 High court interdicts for discontinuation of activities and remediation

Legal authority: Section 155, NWA

Powers: A High Court may, on application by the Minister or the water management institution, grant an interdict or any other appropriate order against any person who has contravened any provision of the NWA, including an order to discontinue any activity constituting the contravention and to remedy the adverse effects of the contravention.

Link to ecological infrastructure: Not explicit

Questions: Did the minister or a water management institution apply for any such interdict in respect of the Carolina crisis?

Comments: A similar provision is not found in the other legislation, but this is essentially just a restatement of the common law.

5.10 Criminal offences for non-compliance with MPRDA obligations

Legal authority: Sections 98 and 99, MPRDA

Rights: The NPA may prosecute any person for any of the offences listed in s 98 of the MPRDA. Offences include failing to obtain an approved EMP or consulting with the lawful owner or occupiers, and failing to conduct operations in accordance with the EMP.

Link to ecological infrastructure: Not explicit.

Questions: 1) Were any charges based on the offences listed in the MPRDA laid against any of the mines, their directors, shareholders, or employees following the Carolina crisis? 2) If so, were the charges prosecuted and what was the outcome?

Comments: These provisions are going to be amended by the MPRDA Amendment Act that is currently pending. However, they were in force at the time that the Carolina crisis occurred. The penalty for failing to obtain an approved EMP or failing to consult was a fine not exceeding R100 000 and/or imprisonment not exceeding two years. The penalty for failing to conduct operations in accordance with the approved EMP was a fine not exceeding R500 000 and/or imprisonment not exceeding 10 years.