# PART VII: MINING AND ENERGY

# Chapter 18: Mining Law and Policy in Namibia

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Mineral and petroleum exploitation inevitably result in pollution and environmental degradation.<sup>1</sup> The environmental aspects of mineral and petroleum exploitation are therefore important components of any regulatory framework for mineral and petroleum resources. The environmental aspects of the mining and energy sectors in Namibia are dealt with in terms of various pieces of legislation. The relevant Acts regulating specific resources – the Minerals (Prospecting and Mining) Act No. 33 of 1992 ('Minerals Act') in respect of minerals and the Petroleum (Exploration and Production) Act No. 2 of 1991 ('Petroleum Act') in respect of petroleum – deal to some extent with environmental obligations in respect of minerals and petroleum. However, in February 2012 the Environmental Management Act No. 7 of 2007 came into operation and now provides for a general framework for environmental authorisations.

## 1 The Environmental Management Act

The Environmental Management Act No. 7 of 2007 (EMA) has a significant impact on the mining and energy sectors in Namibia. Because the EMA came into operation after the Minerals Act and the Petroleum Act, the latter two Acts do not contain any reference to the EMA. Similarly, the EMA does not contain any reference to either the Minerals Act or the Petroleum Act. The link between these three pieces of legislation may, however, be found in 'listed activities'.<sup>2</sup>

In terms of Section 27(1) of the EMA, the Minister of Environment and Tourism ('Minister') may list certain activities that may not be undertaken without an environmental clearance certificate. This list was published by the Minister on 6 February 2012.<sup>3</sup> The listed activities are quite comprehensive and include activities in respect of energy generation, transmission and storage<sup>4</sup> and mining and quarrying activities.<sup>5</sup> More specifically, the following activities may not be conducted without an environmental clearance certificate:

<sup>1</sup> Glazewski (2005:455); Van den Berg (2015:165-167) with reference to petroleum.

<sup>2</sup> See also Van den Berg (2015:183).

<sup>3</sup> GN 29 in GG 4878 of 6 February 2012.

<sup>4</sup> Item 1 of GN 29 in GG 4878 of 6 February 2012.

<sup>5</sup> Item 3 of GN 29 in GG 4878 of 6 February 2012.

- The construction of facilities for the generation of electricity, 6 the transmission and supply 6 of electricity, the refining of gas, oil and petroleum products and nuclear reaction (including production, enrichments, processing, reprocessing, storage or disposal of nuclear fuels, radioactive products and waste).
- The construction of facilities for any process or activities which requires a licence, right or other form of authorisation (including renewal of such a licence, right or authorisation) in terms of the Minerals Act. This is a reference to the construction of accessory works in terms of the Minerals Act, for which the holder of a licence or claim requires additional consent from the Mining Commissioner. The reference to the construction of facilities requiring authorisation in terms of the Minerals Act is, incidentally, the only reference to the Minerals Act in the listed activities.
- Other forms of mining or extraction of any natural resources, whether regulated by law or not,<sup>13</sup> and resource extraction, manipulation, conservation and related activities.<sup>14</sup>

These two broad listed activities are the strongest link between the EMA, the Minerals Act and the Petroleum Act, even though the latter two Acts are not specifically mentioned here. Two important aspects of these two listed activities require further examination. First, it is unclear whether prospecting and exploration activities are included. The Minerals Act and the Petroleum Act deal with the upstream mineral and petroleum industries, in other words the searching for and extraction of minerals and petroleum. 'Mining', 'extraction of resources' and 'resource extraction' clearly refer to those

<sup>6</sup> Generation of electricity means the production of electricity by way of natural or artificial processes. See Section 1 of GN 29 of GG 4878 of 6 February 2012.

Transmission of electricity means the conveyance of electricity by means of a transmission system, which consists wholly or mainly of high voltage networks and electrical plan, from an energy source or system to a customer. See Section 1 of GN 29 of GG 4878 of 6 February 2012.

<sup>8</sup> Supply of electricity means the delivery of electricity to a customer as a commodity. See Section 1 of GN 29 of GG 4878 of 6 February 2012.

<sup>9</sup> Item 1 of GN 29 of GG 4878 of 6 February 2012.

<sup>10</sup> Item 3.1 of GN 29 of GG 4878 of 6 February 2012.

In terms of Section 1 of the Minerals Act, 'accessory works' means "any building, plant or other structure required for purposes of reconnaissance operations, prospecting operations or mining operations or for the disposal of any mineral or group of minerals won or mined in the course of any such operations, or is connected with such operations or disposal, including (a) any power plant, transmission line or substation; (b) any water borehole, well, pipe-line, drilling rig, pump station, tank or dam; (c) any airfield, helicopter landing-pad, road, gate, rail or railway siding; (d) any workshop, hangar, store or office; (e) any explosives magazine; (f) any sampling plant, processing plant, smelter or refinery, whether erected on land or constructed on any vehicle or vessel; (g) any waste disposal site; or (h) any camp site or temporary or permanent residential area."

<sup>12</sup> See Sections 31(3)(a), 58(2)(a), 67(3)(a), 77(3)(a) and 90(2)(a) of the Minerals Act.

<sup>13</sup> Item 3.2 of GN 29 of GG 4878 of 6 February 2012.

<sup>14</sup> Item 3.3 of GN 29 of GG 4878 of 6 February 2012.

activities regulated by the Minerals Act and the Petroleum Act as well. However, exploration activities in respect of petroleum and prospecting activities in respect of minerals generally only involve the searching for the resource and not the extraction of the resource. Both, holders of exploration licences and prospecting licences may extract samples for purposes of testing.<sup>15</sup> One may argue that the possibility of resource extraction, even for testing purposes only, is sufficient to trigger one of these listed activities. Reconnaissance operations, on the other hand, which involves remote sensing, will not require an environmental clearance certificate as these operations do not include physical disturbances of the land. 16 The second issue that warrants discussion in respect of these two listed activities is the extraction of resources beyond the scope of the Minerals Act and the Petroleum Act. In terms of these listed activities, the extraction of natural resources requires an environmental clearance certificate, whether the extraction is regulated by law or not. The Minerals Act and Petroleum Act, on the other hand, only apply in respect of resources that fall under the definition of 'mineral' or 'petroleum'. 17 These two concepts are defined broadly, 18 but the definitions do make provision for certain exceptions. Resources falling either within these exceptions or that generally do not comply with the definitions, will not be regulated by the Minerals Act or Petroleum Act, but extraction thereof will require an environmental clearance certificate. For example, the extraction of soil, sand, clay, gravel or stone bona fide required for building works will not require a mining licence in terms of the Minerals Act, as these resources are excluded from the definition of 'mineral'. A person who

<sup>15</sup> See Sections 67(1)(b) and 67(1)(c) of the Minerals Act in respect of prospecting licences for minerals and Section 29 read with the definition of 'exploration operations' in Section 1 of the Petroleum Act in respect of exploration licences for petroleum. See also Van den Berg (2015:185). Petroleum exploration activities are discussed by Van den Berg (2015:42-45).

<sup>16</sup> See also Van den Berg (2015:185).

<sup>17</sup> See for example Finbro Furnishers (Pty) Ltd v Registrar of Deeds, Bloemfontein 1985 (4) SA 773 (A) at 784; Badenhorst / Mostert (2014:6-1).

In Section 1 of the Minerals Act, 'mineral' is defined as "any substance, whether in solid, liquid 18 or gaseous form, occurring naturally in, on or under any land and having been formed by, or subjected to, a geological process, excluding (a) water, not being water taken from land or from the sea for the extraction therefrom of a mineral or a group of minerals; (b) petroleum, as defined in section 1 of the Petroleum (Exploration and Production Act), 1991 (Act 2 of 1991); or (c) subject to the provisions of subsection (2), soil, sand, clay, gravel or stone (other than rock material specified in Part 2 of Schedule 1) if they are bona fide required for purposes of (i) agriculture, building works, fencing or road making; (ii) the manufacture of bricks and tiles; (iii) the construction of sportsfields, airfields, railways, bridges, dams, reservoirs, weirs, canals or other irrigation works; or (iv) any other purpose defined by the Minister by notice in the Gazette." Section 1 of the Petroleum Act defines 'petroleum' as "any liquid or solid hydrocarbon or combustible gas existing in a natural condition in the earth's crust and includes any such liquid or solid hydrocarbon or combustible gas which has in any manner been returned to such natural condition, but shall not include coal, bituminous shales or other stratified deposits from which oil can be obtained by destructive distillation, or gas arising from marsh or other surface deposits."

wishes to conduct these activities must, however, apply for an environmental clearance certificate, as these are listed activities:

- The extraction of peat. 19 Peat is an organic soil or deposit, consisting of partly decayed plant remains in a wet environment and containing more than 50% carbon. 20 As peat is a soil, it will fall outside the definition of 'mineral' if it is *bona fide* required for agriculture, building works, fencing or road making, the manufacture of bricks and tiles or the construction of sportsfields, airfields, railways, bridges, dams, reservoirs, weirs, canals or other irrigation works. 21 A mining licence will therefore not be required, but the person who intends to extract the peat must apply for and be granted an environmental clearance certificate.
- The extraction or processing of gas from natural and non-natural sources, including gas from landfill sites. <sup>22</sup> The extraction of gas from natural sources require a production licence in terms of the Petroleum Act, as the definition of petroleum in this Act includes combustible gas existing in a natural condition in the earth's crust. <sup>23</sup> Production of gas from any source other than its natural source, or production of non-combustible gas, will not require a production licence in terms of the Petroleum Act but will require an environmental clearance certificate. <sup>24</sup> The same applies to gas arising from marsh or other surface deposits a production licence is not require to extract this gas, but an environmental clearance certificate will be required.

The listed activities may not be undertaken without an environmental clearance certificate issued in terms of the EMA. <sup>25</sup> If any person undertakes a listed activity without the necessary environmental clearance certificate, that person commits an offence and if found guilty, may be liable to a maximum fine of N\$ 500,000 or to imprisonment for a maximum period of 25 years, or to both such fine and imprisonment. <sup>26</sup>

An organ of state responsible, under any law, for granting or refusing an authorisation, (referred to as a 'competent authority') may not issue an authorisation unless the person proposing to undertake the listed activity ('proponent') has obtained an environmental clearance certificate in terms of the EMA.<sup>27</sup> This includes the Minister of Mines and Energy responsible for granting authorisations in respect of mineral and petroleum. Therefore, the Minister of Mines and Energy (or a designated official) may

<sup>19</sup> Item 3.5 of GN 29 of GG 4878 of 6 February 2012.

<sup>20</sup> Jones (2010:140) and Allaby (2008:424).

<sup>21</sup> See Section 1 of the Minerals Act, under the definition of 'mineral'.

<sup>22</sup> Item 3.4 of GN 29 of GG 4878 of 6 February 2012.

<sup>23</sup> Section 1 of the Petroleum Act.

<sup>24</sup> See also Van den Berg (2015:112-117).

<sup>25</sup> Section 27(3) of the EMA.

<sup>26</sup> Section 27(4) of the EMA.

<sup>27</sup> Section 31(1) of the EMA.

not *issue* a licence or claim in respect of minerals before the proponent has obtained an environmental clearance certificate. It should be noted that the prohibition only refers to the *issuing* of authorisations. Therefore, application may still be made for a licence or claim in respect of minerals, and the application may be *granted*, but the licence or claim may not be *issued* to the proponent until the proponent has obtained an environmental clearance certificate.

The process for applying for an environmental clearance certificate is discussed elsewhere in this publication. <sup>28</sup> Of note is that the process involves consultation with all interested and affected parties. Their input has to be included in the application to the Environmental Commissioner. Consultation with interested and affected parties is a vital component of any regulatory framework for mineral and petroleum resources, as the exploitation of these resources results in serious inroads into the rights of private landowners. <sup>29</sup> Neither the Minerals Act nor the Petroleum Act requires an applicant for a licence to search for and extract minerals or petroleum to consult with interested and affected parties. The introduction of a consultation process under the EMA is therefore an important step towards ensuring a transparent and accountable regulatory framework for mineral and petroleum exploitation.

After receipt of the application for an environmental clearance certificate and all supporting documents and information, the Environmental Commissioner has to decide whether an environmental impact assessment is required or not; if an impact assessment is not required, the Environmental Commissioner will merely issue a clearance certificate.<sup>30</sup> In the Minerals Act, however, an impact assessment is in any event required, regardless of whether the Environmental Commissioner deems it necessary.31 Similarly, the Minister of Mines and Energy may require an applicant for a petroleum licence to carry out an impact assessment.<sup>32</sup> In terms of regulation 11 of the Environmental Impact Assessment Regulations, 33 if an assessment is required in terms of any other law or policy and that other law or policy requires that information must be submitted or processes must be carried out that are substantially similar to information or processes required in terms of the Environmental Impact Assessment Regulations, the Minister of Environment and Tourism must take steps to enter into a written agreement with the authority responsible for administering the law or policy in respect of the coordination of the requirements of the law, policy and these regulations to avoid duplication in the submission of such information or the carrying out of such

<sup>28</sup> See Chapter 8.

<sup>29</sup> See Meepo v Kotze and Others 2008 (1) SA 104 (NC) at 13.1; Bengwenyama Minerals (Pty) Ltd and Others v Genorah Resources (Pty) Ltd and Others 2011 (4) SA 113 (CC) at 66.

<sup>30</sup> Section 33(1) of the EMA.

<sup>31</sup> Section 50(f)(i) of the Minerals Act.

<sup>32</sup> Section 12(2)(b)(i) of the Petroleum Act.

<sup>33</sup> The Regulations published in GN 30 of GG 4878 of 6 February 2012.

processes.<sup>34</sup> To date, no such agreement has been entered into between the Minister of Environment, Forestry and Tourism and the Minister of Mines and Energy.

### 2 Mining Laws and Policy

The Minerals Act contains various provisions aimed at protecting the environment. Apart from the Minerals Act, the Minerals Policy for Namibia ('Policy') and the SADC Protocol on Mining ('Protocol') also contain provisions aimed at protecting the environment.

# 2.1 The Minerals (Prospecting and Mining) Act<sup>35</sup>

The Act came into force in 1994 and provides in general for reconnaissance, prospecting and mining for, disposal of, and the exercise of control over, minerals in Namibia and related matters. The Act provides for environmental protection at all stages of the mineral exploitation process. The Minerals Act also authorises the Minister, by notice in the Government Gazette, to declare that prospecting and mining operations within a specific area may only be carried on with special permission from the Minister and subject to such conditions as the Minister may impose, if the Minister deems it necessary or expedient for the protection of the environment or prevention of pollution.<sup>36</sup>

# 2.1.1 Application for Claims and Licences

When applying for an exclusive prospecting licence, mining licence, mineral deposit retention licence (collectively referred to as 'mineral licence') or the registration of a mining claim, the applicant must provide particulars of the condition of, and any existing damage to, the environment in the area to which the application relates. The applicant must further provide an estimate of the effect which the proposed prospecting and /or mining operations may have on the environment and the proposed steps to be taken in order to minimise or prevent any such effect.<sup>37</sup> The same applies to an application for the renewal of a mineral licence or the registration of a mining claim.<sup>38</sup>

<sup>34</sup> Regulation 11 of the EIA Regulations.

<sup>35</sup> No. 33 of 1992.

<sup>36</sup> Section 122(2)(b) of the Minerals Act.

<sup>37</sup> Sections 33(2)(c)(vi), 68(f), 79(f) and 91(f).

<sup>38</sup> Section 38(1) read with Section 33(2)(c)(vi), Section 72(1) read with Section 68(f.), Section 84(1) read with Section 79(f) and Section 96(1) read with Section 91(f).

The same does not apply to applications for non-exclusive prospecting licences or reconnaissance licences. The reason for this insofar as it relates to reconnaissance licences is probably that it is not necessary, since reconnaissance operations are non-invasive operations involving remote sensing. The reason why the same does not apply to non-exclusive prospecting operations, which entails the same activities as exclusive prospecting licences, is uncertain. This is probably an oversight by the legislature. It is submitted, however, that application for non-exclusive prospecting licences or the renewal of these licences should include particulars of the condition of, and any existing damage to, the environment in the area to which the application relates, as well as an estimate of the effect which the proposed prospecting operations may have on the environment and the proposed steps to be taken in order to minimise or prevent any such effect. This is in line with the general tenor of the Act, as well as international standards.

## 2.1.2 Granting of Mining Claims and Mining Licences

The Minerals Act imposes additional environmental obligations on the Mining Commissioner and the Minister of Mines and Energy in respect of the granting of mining claims and mining licences. These additional obligations in respect of mining are justified in the light of the nature of mining operations, which are generally more invasive than prospecting operations. The Mining Commissioner may not grant the application for the registration of a mining claim unless the Commissioner is on reasonable grounds satisfied that in the course of any such mining operations or any prospecting operations which may be carried on in lieu of such mining operations, appropriate measures will be taken to minimise or prevent any pollution of the environment.<sup>39</sup> Similarly, the Minister may not grant an application for a mining licence unless the Minister is on reasonable grounds satisfied that the proposed programme of mining operations to be carried out and the expenditure to be incurred will ensure *inter alia* adequate protection of the environment.<sup>40</sup>

# 2.1.3 Exercising Rights in Terms of Claims and Licences

It is a term and condition of the registration of a mining claim that the holder of such mining claim shall take all reasonable steps necessary to prevent or minimise any pollution of the environment.<sup>41</sup> The same applies to holders of exclusive prospecting

<sup>39</sup> See Section 35(e)(iii).

<sup>40</sup> Section 92(2)(c)(ii)(bb) of the Minerals Act.

<sup>41</sup> Section 41(1)(e) of the Minerals Act.

licences, mineral deposit retention licences and mining licences as well,<sup>42</sup> but not holders of non-exclusive prospecting licences and reconnaissance licences. As discussed above,<sup>43</sup> the exclusion of holders of reconnaissance licences from this obligation makes sense with reference to the nature of reconnaissance operations. The exclusion of holders of non-exclusive prospecting licences does not, however, make sense and may be an oversight.

It is furthermore a term and condition of every mineral licence (but not mining claims or non-exclusive prospecting licences) that the holder must prepare an environmental impact assessment indicating the extent of any pollution of the environment before any prospecting operations or mining operations are being carried out. The holder must also provide an estimate of any pollution, if any, likely to be caused by such prospecting operations or mining operations. <sup>44</sup> If any pollution is likely to be so caused, an environmental management plan indicating the proposed steps is to be prepared in order to minimise or prevent to the satisfaction of the Commissioner any pollution of the environment and consequence of any prospecting operations or mining operations carried on by virtue of such mineral licence. <sup>45</sup> Furthermore, the holder must from time to time as circumstances change revise such an environmental management plan either out of his/her own motion or as required by the Commissioner. <sup>46</sup> The application of these obligations to reconnaissance licences but not non-exclusive prospecting licences or mining claims is nonsensical. It is submitted that this is probably an oversight.

When in the course of any reconnaissance, prospecting and mining operations carried on under any non-exclusive prospecting licence, a mining claim or a mineral licence, any mineral or group of minerals is spilled or land or water is polluted or any plant or animal life is endangered or destroyed or any damage or loss is caused to any person (including the state) by such spilling or pollution, the holder of the licence or mining claim must immediately report such spilling, pollution, loss or damage to the Minister of Mines and Energy. The holder must then take at his or her own costs all such steps as may be necessary in accordance with good reconnaissance, prospecting or mining practices or otherwise as may be necessary to remedy such spilling, pollution, loss or damage.<sup>47</sup> If the holder fails to comply with these provisions within such period as the Minister may deem in the circumstances to be reasonable, the Minister may direct the holder by notice to take the necessary steps (as stated in the notice) within the necessary period (also stated in the notice) to remedy the spilling, pollution or damage or loss. The notice must be in writing addressed and delivered to the holder.

<sup>42</sup> Section 41(1)(e) read with Sections 74, 86 and 98 of the Minerals Act.

<sup>43</sup> At 2.1.1.

<sup>44</sup> See Section 50(f)(i) of the Minerals Act.

<sup>45</sup> See Section 50(f)(ii) of the Minerals Act.

<sup>46</sup> See Section 50(g) of the Minerals Act.

<sup>47</sup> Section 130(1) of the Minerals Act.

The Minister may, if the holder fails to comply with such directions to the satisfaction of the Minister within the period specified in such notice or such further period as the Minister may on good cause shown allow in writing, cause such steps to be taken as may be necessary to remedy such spilling, pollution or damage or loss and recover in a competent court the costs incurred thereby from such holder. This section does not apply to holders of exclusive prospecting licences. It is submitted that this is an oversight by the legislature, as the activities authorised by a non-exclusive prospecting licence and an exclusive prospecting licence are the same.

### 2.1.4 Mine Closure and Rehabilitation

If a mining claim or reconnaissance, prospecting, retention or mining area is abandoned, the holder of the claim or licence to which such area relates must take all such steps as may be necessary to remedy to the reasonable satisfaction of the Minister any damage caused by any prospecting operations and mining operations carried on by such holder to the surface of, and the environment on, the land in the area in question. <sup>49</sup> The Minister may, with due regard to good reconnaissance, prospecting or mining practices by notice in writing addressed and delivered to the holder, give directions to such holder in relation to the protection of the environment. <sup>50</sup>

If a non-exclusive prospecting licence, mining claim or mineral licence has been cancelled or has expired, the Minister may by notice direct such person to take all such steps as may be necessary to remedy to the satisfaction of the Minister any damage caused by any prospecting operations and mining operations carried on by such holder to the surface of, and the environment in, such area. The notice must be in writing addressed and delivered to the person who was the holder of such licence or mining claim. The same applies if any area to which such licence or mining claim relates has been abandoned or has for any reason ceased to be part of the area to which such licence relates. If the person fails to comply with a direction given in the notice, the Minister may cause such steps to be taken and recover the costs thereof from that person. 25

<sup>48</sup> Section 130(2) of the Minerals Act.

<sup>49</sup> Sections 43(2)(c) and 54(2)(b) of the Minerals Act.

<sup>50</sup> Section 57(1)(b) of the Minerals Act.

<sup>51</sup> Section 128(1)(b) of the Minerals Act.

<sup>52</sup> Section 128(2)(a) of the Minerals Act.

# 2.2 The Minerals Policy

In 2002, the Ministry of Minerals and Energy published a Minerals Policy for Namibia ('Policy'). This Policy states, in its foreword, that the Government recognises the importance of the mining industry in the social and economic development of Namibia. The vision of the policy is

to achieve a high level of responsible development of national resources in which Namibia becomes a significant producer of mineral products while ensuring maximum sustainable contribution to the socio-economic development of the country [and] [t]o further attract investment and enable the private sector to take the lead in exploration, mining, mineral beneficiation and marketing.<sup>53</sup>

The mission of the policy is stated as follows:<sup>54</sup>

The Ministry of Mines and Energy (MME), as the custodian of Namibia's rich endowment of mineral and energy resources, facilitates and regulates the responsible development and sustainable utilisation of these resources for the benefit of all Namibians.

The Policy recognises the effect that mining has on the environment and the need for appropriate legislation to regulate the environment in mining. It furthermore recognises that there is little effective environmental management within the Namibian mining industry. The Minerals Policy attributes this to inadequate co-ordination between the Ministry of Mining and Energy and the Ministry of Environment, Forestry and Tourism in relation to environmental legislation; a lack of public awareness, capacity weaknesses and education programmes focused on environmental issues; the absence of an environmental budget, and the public antagonism towards mining activities because of its negative effects on the environment.

The Policy further calls for clear funding mechanisms for environmental rehabilitation, management and control, which will be achieved through the development and implementation of internationally benchmarked Environmental Trust Funds or Bonds, and the implementation of industry good practices in respect of waste management.<sup>57</sup>

The Government's policies with regard to the mining industry and the environment are summed up as follows:

- Government will ensure that the development of Namibia's mining industry proceeds on an environmentally sustainable basis.
- Government will enact exploration and mining legislation benchmarked against environmental global best practice.

<sup>53</sup> Para. 1.2 of the Policy.

<sup>54</sup> Para. 1.2 of the Policy.

<sup>55</sup> GRN (2002e:26).

<sup>56</sup> Para. 5.2. of the Policy.

<sup>57</sup> Paras 5.3. and 5.4. of the Policy.

- Government will ensure compliance during rehabilitation with national policies and guidelines, and where appropriate and applicable, with global best practice.
- Government, with relevant stakeholders, will investigate the establishment of financial mechanisms for environmental rehabilitation and aftercare.
- Government, in consultation with the mining industry, will develop waste management standards and guidelines for Namibia.

Although the Policy is not binding, it does reflect the Ministry's attitude towards mining and the environment.

### 2.3 The SADC Protocol on Mining

The SADC Protocol on Mining ('Protocol on Mining') states that member states must promote sustainable development by ensuring that a balance between mineral development and environmental protection is attained.<sup>58</sup> Member states must encourage a regional approach in conducting environmental impact assessments especially in relation to shared systems and cross-border environmental effects.<sup>59</sup> Member states must collaborate in the development of programmes to train environmental scientists in fields related to the mining sector.<sup>60</sup> Through the Protocol on Mining, member states undertake to share information on environmental protection and environmental rehabilitation.

<sup>58</sup> Article 8(1).

<sup>59</sup> Article 8(2).

<sup>60</sup> Article 8(3).