MINE WATER POLLUTION AND EUROPEAN POLICIES

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ABSTRACT

Recent tailings dam failures from mines (Aznalcóllar, Spain, 1998; Baia Mare, Romania 2000) and the difficulty to assign liability for contamination have led to the recognition that Community environmental legislation on mining operation is needed. There are EU directives on waste, water, air, nature conservation and environmental impact assessment that apply generally to the extractive industry, but there is no specific legislation on mining. However, this is changing. Amongst recent initiatives taken by the European Commission in this field is a proposal for a directive on waste produced by the extractive industries. This article reviews the initiatives of the Commission in environmental regulation of mining in the light of the EU strategy for sustainable development. Its is a contribution from the European funded research project on 'Environmental Regulation of Mine Waters in the European Union' (ERMITE[2]).

Introduction

Over 300 legal acts passed by the EU over the last 30 years have demonstrated that the EU has endorsed and adopted the principles of environmental protection and sustainable development. However, research and monitoring on the state of the environment in Europe suggests that environmental degradation still continues. The recent emphasis on sustainable development and environmental objectives across the EU policies has brought about a fresh wave of activity. As a result, sectors such as mining will be subject to specific regulation at European level. Mine water pollution is a specific issue where a combination of a change in the policy environment and a series of incidents have been the catalyst for action by the Commission. In this paper, we will consider mine waters as waters in mined ground (including waste rock/tailings depositories) and/or which are flowing from mined ground into adjoining water bodies (such as streams, wetlands, lakes, aquifers, and oceans).

While significant technical advances have been made in mining activities, these still have many negative impacts on the environment and on the local communities. Recent failures of tailings ponds (e.g. Aznalcóllar in Spain, 1998; Baia Mare in Romania, 2000) resulted in large-scale aquatic pollution. These incidents are of

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concern to EU policy makers. This has led to the review of effectiveness and applicability of current legislation at national and EU levels to account for pollution from active and abandoned mines. A recent survey of European countries has found that the legal regimes are frequently failing to provide a sufficient level of environmental protection covering all aspects of mine water pollution (Wolkersdorfer 2002). One response to these shortcomings is the combination of a regime which would assign liability for any environmental damage caused and the provision for mine water pollution within a directive on the management of waste from the extractive industry with a clear and operative reference to the European water policy[3].

The context of sustainability in European environment legislation

The development of European policies results from the combined efforts of the European institutions (the Council of Ministers, the European Parliament and the European Commission, EC) and the Member States. The Community has several unique characteristics, as it has legislative, executive and judicial organs of government and a transfer of competence from the Member States to the Community according to the Treaty. Also, there is supremacy of Community law over national law, which is subject to exclusive review by the Community's Court of Justice. The European Commission has a central role as the originator of all European legislation. Its work is based on the requirements of the treaty, international obligations and the further development of existing policies.

Concepts such as "*environmental protection*", "*environmental policy*", or "*sustainable development*", which are mainstream today, were not mentioned in the original Treaty of Rome signed in 1957. Article 2 of the Treaty however sets out criteria for the improvement of standards of living in the Member States. On this basis, the first "environmental" European Directive was adopted in 1967 on the classification, packaging and labelling of dangerous substances[4]. In 1970, the EC submitted a memorandum to the Council to draw up a Community Action Programme on the environment. The communication[5] gave rise to vigorous debates between Member States and the EC. By October 1972, the then 9 Member States accepted the view of the EC, backed up by the European Parliament, favouring Community provisions for environmental matters. Since then, six Environmental Action Programmes (EAP) have been adopted. Although such programmes were political declarations of intent, they did not initially constitute a legal basis for Community environment measures (Kramer 1990).

The 1985 Single European Act (SEA) provided for the first time a legal underpinning for the Community developing environmental policy (Articles 130r, 130s and 130t under Title VII "Environment"). The creation of the Single European Market was accompanied by Article 130r(2) of the SEA specifying that "*environmental protection requirements shall be a component of the community's other policies*". Naturally, the Fourth EAP of 1987 gave pre-eminence to environmental integration. It was during the 1990 Intergovernmental Conference (IGC) that the word "*sustainable*" was first used in a Community context and added to the pre-existing objective of political and monetary union. In 1993, the Maastricht Treaty on the European Union introduced the

[3] Commission of the European Communities 2000. Council Directive 2000/60/EC of 22 December 2000 establishing a framework for Community action in the field of water policy
[4] Council Directive 67/548/EC, O.J. 1967, L191/1
[5] Commission SEC(71)2616 final (July 22, 1971)

word "*sustainable*" (Art B) and amended Article 2 of the Treaty of Rome by replacing the objective of "*continuous expansion*" with that of "*sustainable and non-inflationary growth respecting the environment*". Article 130r(2) was also amended to strengthen the integration principle now making it imperative: "*environmental protection requirements must be integrated into the definition and implementation of other Community policies*". Note that since the Maastricht Treaty the EAPs have acquired a new legal status (Article 130s(3)) under the co-decision procedure with the European Parliament. Prepared in parallel with the principal 1992 Rio agreements and sharing the principles of the Agenda 21 strategies, the Fifth EAP (1992-2000) marked an important change of direction for the Community's environmental policy.

The 1997 Amsterdam Treaty introduced a much stronger mandate for the incorporation of sustainability in all fields of EU activity (Art.6 of the Treaty). Each DG now has the duty to examine the sustainability of its policies and DG Environment has reorganised its structure to include wider issues of sustainability and environmental governance. The Helsinki European Council in December 1999 invited the European Commission to "*prepare a proposal for a long-term strategy dovetailing policies for economically, socially and ecologically sustainable development*" in time for the Gothenburg European Council in June 2001. The resulting document of the Commission includes objectives, measures and timetables for policy review[6]. The Sixth EAP (2001-2010[7]) establishes the objectives for the next 10 years of environmental action by the EU. It includes four main priority areas: climate change, nature and biodiversity, health and environment, and natural resources and waste, this last area specifically including the topic of water. The Sixth EAP for the first time introduces policy action in the mining sector to take place at EU level[8].

Changes in European mining policies

Mining is one of the oldest industrial sectors in Europe and has received considerable attention within the Communities industrial and economic policies. For historic and economic reasons, mining has been specifically excluded from European environmental policy. The pressure from the public arena as a result of recent tailings dam failures at active mines in Europe has influenced the Community to bring forward environmental policy proposals in the mining sector. In the case of Aznalcóllar toxic spill, the press repeatedly referred to the contamination of the adjacent nature conservation area of Doñana Natural Park as the greatest threat to the region resulting from the spill. The EC created a task force on the follow-up to recent mining accidents (known as the "Baia Mare Task Force", March 2000[9]). In less than one year, the EC also published three communications on environmental aspects of

[6] Commission of the European Communities. 2001. Communication of 15 May 2001 from the Commission. A sustainable Europe for a better world: European strategy for sustainable development, Commission proposal to the Gothenburg European Council. COM (2001) 264 final

[7] Commission of the European Communities. 2001. Communication from the Commission on the Sixth Environment Action Programme of the European Community, Environment 2010, our future, our choice. Proposal to the European Parliament and to the Council. COM (2001) 31 final

[8] Decision No. 1600/2002/EC of the European parliament and of the Council of 22 July 2002 laying down the Sixth Community Environment Action Programme, O.J. 2002 L 242/1 (10/9/2002), Art. 6(2)b.

[9] See section 3.1. in Communication of 23 October 2000 from the Commission on Safe operation of mining activities: a follow-up to recent mining accidents. COM (2000) 664 final

mining emanating from two different Directorates General (Enterprise[10] and Environment[11, 12]).

The findings of the Baia Mare Task Force highlighted the need for a critical review of the current status and future requirements of EU legislation related to mining activities. Although a variety of existing EU legal instruments address environmental issues arguably relevant to mining activities, the European legislation does not specifically include mining. As a result of these findings, a proposal for a new directive on the management of waste from the extractive industry was issued in July 2001 by the EC[13]. The Member States also agreed to the need for technical guidelines to be prepared on best available techniques (BAT) for the management of tailings and waste-rock in mining activities in the context of the Integrated Pollution Prevention and Control Directive[14]. These and other policies being prepared by the EC are summarised in Table 1.

Objective	Policy Action
Management of mining waste	Draft proposal for a Directive on the management of waste from the extractive industry
Industrial risk management	Amendment of the Seveso II Directive
Integrated pollution prevention and control	Preparation of a technical reference document on management of tailings and waste-rock in mining activities (Best Available Techniques Document)
Environmental liability	Proposal for a Directive on environmental damage with regard to the prevention and restoration of environmental damage

Table 1. **EU mining related policies in preparation**

From the four policy initiatives, the proposal for a new directive on the management of waste from the extractive industry is more likely to cover mine water pollution[15]. Mining is known to be one of the largest generators of waste in the EU. Since water is the major pathway for mine-sourced contaminants, it is important that any new directive clearly takes into account mine water questions. The First European Stakeholder Group Meeting (ERMITE, 01/06/01, Brussels) highlighted that the first source of pollution in mining is mine voids and mine waters and not mine waste.

The Seveso II Directive covers industrial accidents. It obliges industrial operators to implement Safety Management Systems, including details of risk assessment with

[10] Commission of the European Communities. 2000. Communication of 3 May 2000 from the Commission on Promoting sustainable development in the EU non-energy extractive industry. COM (2000) 265 final

[11] Commission of the European Communities. 2000. Communication of 23 October 2000 from the Commission on Safe operation of mining activities: a follow-up to recent mining accidents. COM (2000) 664 final

[12] Commission of the European Communities 2000. Communication on the Community Mechanisms for the co-ordination of the Civil Protection Interventions in case of Emergencies. COM (2000) 593 final

[13] http://europa.eu.int/comm/environment/waste/mining/htm

[14] Commission of the European Communities. 1996. Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control

[15] Working Document Number 2: The Management of Waste Resulting From Prospecting, Extraction, Treatment and Storage of Minerals. Brussels, 04/02/2002, DG ENV.A.2/LM. Under inter-service consultation in March 2003.

possible accident scenarios. In the wake of the Baia Mare (release of cyanide wastes causing massive fish kills along the Tisza river and contaminating the Danube) and Aznalcóllar incidents (causing extensive contamination of the Donaña national park with metal-rich wastes), it is envisaged to amend the Seveso II Directive so that it unequivocally includes mineral processing, including the use of tailings ponds. However, such activities could only be covered by the Seveso II Directive should dangerous substances be involved, and present in quantities beyond the threshold levels set out in the directive. Discussions with Member States have started on this matter. Further recent explosions at Toulouse and at Enschede will gear impetus to updating Seveso II Directive, and most notably, the regulations applying to hazardous industrial installations. The proposal for an amendment of the Seveso II Directive would focus on explosives and fireworks factories, mining wastes, carcinogens, and changes to the tonnage thresholds which brings installations holding chemicals classified as "*dangerous for the environment*" within the directive's scope[16]. The European Parliament has recently demanded a shift in policy towards « risk removal » under EU legislation on major accident hazards (EP Resolution of 3 October 2001).

Although the IPPC Directive does not include mining *per se*, a special technical document highlighting best available techniques on management of tailings and waste-rock in mining activities (BAT document[17]) is being prepared. This technical document is intended to inform operators on the best practices to reduce pollution and pollution risk. The mining sector has expressed its willingness to discuss the framing of BAT guidance and agreed on the scope of a BAT document on tailings and waste-rock in mining activities. Despite the lack of a formal link between BAT documents and the Seveso II Directive, the forthcoming BAT document on the management of tailings and waste-rock is likely to inform the writing and implementation of the amended Seveso II Directive and of the proposal for a directive on the management of waste from the extractive industry.

The proposed directive on environmental liability[18] which followed the White Paper on Environmental Liability[19] offers a new type of regulation to the mine water pollution. Its principal objective is to make operators liable for the clean up for the contaminated sites. If the operators can not be located or are exempt from liability under the proposed directive, the Member States are responsible for the clean up costs (Art. 6 and Preamble: recitals 11, 15 and 17). The proposed directive promotes the polluter pays principle and aims to establish a common framework for Wild Birds, Habitats and Water Framework Directives. It concerns any professional activities with potentially environmentally harmful effects, including mining.

As for mining, what is the impact of the proposed directive[20]? Mining activities are covered by Annex I if and when they are licensed under one or more listed directives. In that case, damages fall under strict liability (Art. 3(1)). In the case mining activities are not covered by Annex I, they are nevertheless covered by Art. 3 (2) giving rise to

[16] ENDS Report. 2001. Environmental Data Services: October issue, 321: 47-48. See most recently the Commission's Amended Proposal of 26/9/2002, COM(2002) 540 final

[17] http://eippcb.jrc.es/pages/FActivities.htm

[18] Proposal for a Directive of the European Parliament and of the Council on environmental liability with regard to the prevention and the remedying of environmental damage. COM(2002) 17 final, Brussels, 23/1/02.

[19] Commission of the European Communities 2000. White paper on environmental liability. COM(2000) 66 final

[20] Particularly relevant are Art. 19 and Art. 21

fault liability for biodiversity damage. Basically, the impact will vary depending on the type of mine considered, whether it is a closed, ongoing or new mine (that is, opened after 30.06.05). Liability damage resulting from a closed mine is excluded. However, as regards to ongoing and new mining operations, the liability regime will apply provided the damage is proven to result from an activity occurring after 30.06.05. This rule includes damage caused by releases of hazardous substances into the environment by industrial installations and by waste lawfully deposited at disposal facilities. It follows that the proposed regime shall not be retroactive and will apply to mining activities ongoing at 30.06.05. In addition, operators are given the possibility to lodge a statement before 30.06.06 identifying damage caused by activities before 30.06.05. If operators agree, the damage statement will be available to the public authorities and to the general public under the access to environmental legislation[21]. The damage statement can be used to determine the state of the natural resources and the extent of the damage caused by activity taking place after 30.06.05[22].

A general framework for EU policy co-ordination

Environmental, industrial, regional development policies, and research activities are all relevant to the multifaceted impact of mining. At the European Commission, in addition to the Joint Research Centre, there are four Directorates General whose work relates to this topic: DG Environment, DG Enterprise, DG Regional Policy and DG Research. DG Environment considers the environmental aspects of mining to the extent they fall within the waste sector and within the sphere of industrial accidents. Hence, the current trend in EU policy development is to focus on 'mining wastes' rather than 'mine water'. While the Water Framework Directive (WFD, Commission of the European Communities 2000d) only briefly mentions mine waters (Art. 11(3)j), it is applicable to the management of those waters. However, mining waste policy that recognises mine water implications will help to harmonise the regulation in this area.

The Sixth Environment Action Programme reviews industrial and regional development policies of the EU from the sustainability viewpoint[23]. For instance, the Communication from DG Enterprise on sustainable development in the EU non-energy extractive industry is part of the process initiated at Helsinki in 1999. According to this Communication, the integration of sustainable development will also be a priority in enterprise policy. This should greatly facilitate the environmental regulation of the non-energy extractive industry. It is interesting to note that the energy extractive industry has traditionally been dealt with by DG Energy and not by DG Enterprise. The institutional separation between the energy and non-energy industrial sectors is also common in the Member States, where various ministries (industry, public works and energy) are involved in the management and policy development for the whole spectrum of mining activities.

The mining sector has been a beneficiary of EC regional development funding (Structural Funds, SF[24]. and Cohesion Funds, CF), in the regions subject to EC aid.

[21] Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental legislation and repealing Council Directive 90/313/EEC.
[22] For some critical observations, see Brans 2002.
[23] Commission of the European Communities. 2001. Communication from the Commission on the Sixth Environment Action Programme of the European Community, Environment 2010, our future, our choice. Proposal to the European Parliament and to the Council. COM (2001) 31 final
[24]The Structural Funds are made up of four separate funds: the European Regional Fund (ERDF), the European Social Fund (ESF), the Guidance Section of European Agriculture Guidance and Guarantee

The regulations of the SF Programs and CF Projects have been recently reviewed under the sustainability angle. They now require SF Programs and CF Projects to place a particular emphasis on sustainable development[25]. The new General Regulation of the SF and the revision of the CF Regulation introduced the Polluter Pays Principle (one of the founding principles of European environmental law) into the operations of the funds. This principle implies that those who cause environmental damage should bear the costs of avoiding it or compensating for it[26]. Environment (i.e., waste and water), transport and energy operations account for over 90% of the Community's support for infrastructure through CF and SF. The Polluter Pays Principle is seen as an important tool for integrating environmental protection into regional policy[27].

Finally, EU research policy also has an important role to play. Throughout the "Framework R&D Programmes", the EC has funded collaborative research projects on themes of common interest to Member States over many years. The Fifth Framework (FP5, 1998-2002) has re-emphasised the need to orient research projects to serve the needs of EU policy. Its "Energy, Environment and Sustainable Development Programme" is currently supporting projects dealing with metal pollution and mining. Amongst those projects, ERMITE focuses explicitly on interfacing research with policy-making on mining, water and the environment.

Conclusions

Despite is economic importance, mining activities still have many negative impacts on the environment and on the local communities. Large-scale aquatic pollution due to mining accidents (e.g. Aznalcóllar in Spain, 1998; Baia Mare in Romania, 2000) have shown how mining operations have a major impact upon the environment. For historical reasons, mining, one of the oldest industrial sectors of Europe has been excluded from European environmental policy. However, this is changing. Amongst the policy proposals put forward at the European level, the proposal for a directive on the management of waste from the extractive industry is likely to include provisions for mine water pollution. The combination of new European environmental policy proposals and provisions for mine water pollution to a regime which would assign environmental protection from the impact of mining will provide a high degree of environmental protection in Europe.

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Fund (EAGGF) and the Financial Instrument for Fisheries Guidance (FIFG). There are ruled by 6 Council Regulations 2080/93/EC to 2085/93/EC

[25] Commission of the European Communities. 1999. Communication of 1 July 1999 from the Commission on the structural funds and their co-ordination with the Cohesion Fund, Guidelines for programmes in the period 2000-2006. COM (1999) 344 final

[26] Commission of the European Communities. 1999. The new programming period 2000-2006: Technical Paper 1. Application of the polluter pays principle, differentiating the rates of Community assistance for Structural Funds, Cohesion Funds and ISPA infrastructure operations

VITAE

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