

Why are Atalaya's Riotinto tailings dams at risk?



A summary report by Richard Harkinson, outlining the key findings from a risk analysis report by Dr Steve Emerman

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Acronyms

AAU

Autorizacion Ambiental Unificada (Spanish environmental authorisation)

AIM

London's Alternative Investment Market

ATYM

Atalaya Mining - a Spanish mining company, listed on AIM

AYESA

A Spanish engineering, technology and consulting company

EA

Ecologistas en Accion - a Spanish coalition of environmental groups

EIA

Environmental Impact Assessment

EMED Mining

Atalaya Mining's former name, until 2015

EU

European Union

JdA

Government of Andalucía

LMN - London Mining Network

LSE

London Stock Exchange

NOMAD

A nominated adviser (NOMAD) is a firm or company which has been approved by the London Stock Exchange (LSE) as a nominated adviser for the Alternative Investment Market (AIM) and whose name has been placed on the register of nominated advisers published by the London Stock Exchange

NGO

Non-governmental organisation

TSJA

Superior Court of Justice of Andalusia (Tribunal Superior de Justicia de Andalucía)

Report summary

London Mining Network (LMN) presents a summary of an important new report “*Risk Analysis of the Tailings Dams at the Riotinto Mine, Andalusia, Spain*” by tailings dam expert Dr Steven H. Emerman. We asked Dr Emerman to undertake a risk analysis - the risk of failure of the tailings dams at the Riotinto Mine, which was submitted in August 2019 ¹ [p67/72].

Written by LMN researcher Richard Harkinson, this summary aims to summarise and contextualise Emerman’s report - how it came about and how it fits into present issues and developments that we urgently need to engage with.

LMN began working with the Spanish environmental non-governmental organisation (NGO) Ecologistas en Accion in mid-2018, and became aware of their considerable work and continuing concerns on questioning the safety of these tailings dams.

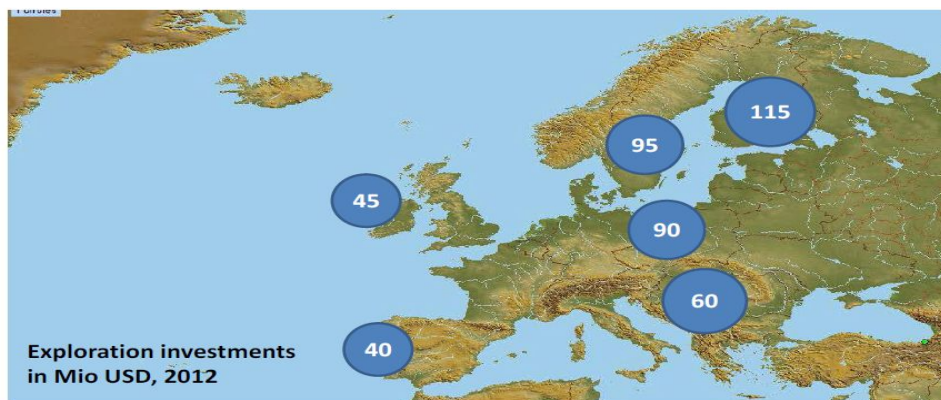


Figure 1: Investments in exploration within the EU (M. Ericsson, Raw Materials Group, 2012)

What work is LMN doing on the EU and tailings dams?

London Mining Network is an alliance of 30 human rights, environmental and solidarity groups all based in the UK. We support communities badly affected by mining and some of the ways we do this are advocacy, research and working for policy change.

One strand of our work is on mining and mine waste in the European Union. We are currently researching imports of mining products into the EU and the links between the EU’s identification of ‘critical raw materials’², the understated reliance of EU economies on metals and minerals import flows³, and the development of mining within larger economies in the EU⁵, in particular. Within our work on the expansion of mining within the EU, we have worked with other NGOs on the impacts, risks and threats of mining, and questioned the adequacy of regulation around these. Within a situation of inadequate transparency, we

¹ <https://londonminingnetwork.org/what-we-do/research/risk-analysis-of-riotinto-mine-spain/>

² https://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical_en

³ Passarini, F., Ciacci L., Nuss P. and Manfredi S., Material Flow Analysis of Aluminium, Copper, and Iron in the EU-28, EUR 29220 EN, Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-85744-7, doi:10.2760/1079, JRC111643

have sought to analyse the movement of mining finance,⁴ and to participate in civil society actions for increased transparency.⁵

On issues of mine waste, we are raising tailings dams stability concerns and critically examining alternative mine waste disposal systems. We are collaborating with groups in Europe to improve the regulation of mine waste in the hope of it setting a better standard worldwide. We are also working with groups around the world responding to a new investor initiative on waste dam stability, while urgently engaging with mining company investors on the risk of tailings dam failures.

We support mine-affected communities and partners working with these communities who are seeking redress for the tailings dam disasters of Samarco and Brumadinho in Brazil, and to highlight tailings dams at risk, such as the one at Riotinto, outlined in this report.

Tailings dam risk at Riotinto mine, Andalucia

Mining company Atalaya is listed on London's Alternative Investment Market - a less regulated market for companies too small to be on the London Stock Exchange. The company's Riotinto Mine [formerly owned by, but no longer associated with, Rio Tinto mining company] is an open-pit copper mine in the province of Huelva, Andalusia, southern Spain. The mine currently processes 9.5 million metric tons of copper ore per year with plans to expand to 15 million metric tons per year (Atalaya Mining, 2019a⁶) [p6/72].

In May 2017, Spanish environmental organisation Ecologistas en Accion published a video⁷ which was carried by a national social media platform showing one of the sections of the Riotinto dam 'overtopping' (spilling over) and 'piping'.

Piping is a bubbling effect on the surface of the water which is symptomatic, according to British Columbia Regulations⁸, of the terminal state of a dam's retaining walls. It means that the sludge is too liquified and only 30% solid, which risks the walls being eroded. Against the environmental conditions of its permit, Atalaya has not yet built the necessary concentration plant to thicken the tailings to the 50% solids required.

Ecologistas en Accion have repeatedly warned the company, and asserted in Spanish social media that the overtopping, and piping are clear indications that the dams have exceeded their overall capacity and that breakage of the three dams is imminent. The company denies these claims.

⁴ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-markets/capital-movements_en

⁵ http://en.frankbold.org/sites/default/files/publikace/statement_eu_legal_corporate_sustainability_reporting_framework_0.pdf?

⁶ <https://atalayamining.com/wpcontent/uploads/2018/07/RioTinto-July-2018-Complete-Report-Rev-6.pdf>

⁷

<https://contrainformacion.es/la-rotura-de-la-balsa-de-atalaya-mining-en-riotinto-podria-multiplicar-por-diez-el-vertido-de-aznalcollar-en-1998/>

⁸ <https://londonminingnetwork.org/2018/07/ties-are-stronger-now-spanish-campaigners-unite-around-atalaya-agm/>

Which tailings dams are at risk?

The mine waste is stored in two tailings ponds or reservoirs - these are named Cobre and Aguzadera reservoirs. These two reservoirs are confined by a tailings dam, although they also share a common dam wall. Excess water from the tailings reservoirs is pumped into a third reservoir, the Gossan reservoir, behind a third dam. Since the Cobre reservoir is upstream from the Aguzadera reservoir and the Gossan reservoir is upstream from both tailings reservoirs, the three dams could fail in a chain reaction - like dominoes.

Dr Steve Emerman explains in his report that:

“The probability of failure due to liquefaction of the upstream tailings dams at the Riotinto Mine in Andalusia, Spain, is very high. The water table directly behind the Aguzadera Dam is only 2.9 meters below the surface and uncontrolled seepage occurs through the downstream embankment at the same elevation, indicating that both the dam and tailings are nearly completely saturated with water.” [p3/72]

As Emerman’s report indicates, Atalaya Mining [ATYM], creates significant volumes of waste stored as tailings, and despite the flawed management of the waste containment dams, it informs its potential market investors that it *plans to expand its Cobre dam by the ‘upstream’ raising method by another 33 metres* [i.e up to 265 metres above sea-level], using “waste mine rock”.⁹

Emerman’s risk analysis comprised both assessing the probability of failure and the consequences of such failure of the tailings dams. He visited the mine site, met with Atalaya Mining executives and with officials of the Andalusia regulator in Seville, and analysed “key documents” [pp 8,36/72]:

- The most recent description of the tailings dams by Golder Associates (2016),
- The most recent dam safety evaluation by Ramírez and Laín (2016), and
- The most recent dam breach analysis by Ayesa (2014).

These documents, which are in Spanish, are directed towards the regional mining regulators in Andalusia and are not available online.

He also analysed and raised concerns about a report written in English by Ore Reserves Engineering to investors, available online (2018) [see note 8 below].

Dr Emerman defined the risk analysis of the RioTinto tailings dams, using these questions to frame his research [p35/72]:

- 1) What is the probability of failure of the tailings dams by liquefaction?
- 2) Were Spanish academics Ramírez and Laín (2016) correct in asserting that the quantity of water stored behind the tailings dams was *independent* of the initial solids content of the tailings?
- 3) Do the tailings dams have an adequate beach?
- 4) What is the probability of failure of the tailings dams by internal erosion and by flooding?

⁹ <https://atalayamining.com/wpcontent/uploads/2018/07/RioTinto-July-2018-Complete-Report-Rev-6.pdf>

5) Did Ayesa (2014) adequately assess the consequences of failure of the tailings dams?



Fig 2: Cobre and Aguzadera mining waste dams. Ecologistas en Accion

Analysing the stability of the waste dams: design factors

"The Aguzadera and Cobre Dams are upstream tailings dams. The essential characteristic of upstream dams is that the dam is underlain by uncompacted tailings, which means the solid mine waste is less tightly packed together (compare Fig. 5a with Figs. 8-9)." Dikes are ridges or artificially constructed walls, which regulate water levels.

Canadian construction and consulting company Golder Associates confirmed that the dams' first level comprised 'sand dikes [which] were never compacted' [p21 and fig 9] and described the three raises [with heights] of the dams] and steepness of the slopes [pp20-21/72]. They undertook vertical column drilling to contribute to an assessment of the "stability of the tailings dams... across two profiles for the Aguzadera reservoir (A1 and A2) and one for the Cobre reservoir (C1)" [fig 11]. They also described how the tailings "exported to the Aguzadera and Cobre deposits as a mixture of water and solid particles that is 35% solids by weight" [p23].

Dr Emerman described this as a "conventional method of tailings delivery that *does not involve any thickening* (removal of water) from the tailings prior to storage in a tailings reservoir".

The hazard or consequence potential of an upstream-raised dam is the category for the start of a dam design assessment which is then assessed [according to the regulatory code applied] and mediated in terms of the required planned resistance to specific 'design flood' and 'design earthquake' factors so as to determine the specific dimensions of the dam 'beach' and of the drainage 'perimetral canals'.

"The Aguzadera and Cobre tailings deposits have been designed to withstand a 500-year flood. In particular, the perimetral canal that isolates the Aguzadera deposit from the rest of the watershed was designed to be able to carry the discharge from a 500-year flood

(see Figs. 3 and 10). This design safety criterion already sets the annual probability of dam failure due to flooding at 0.2%. Key operating criteria related to flooding are that the tailings beach must be at least 50m wide at all times and the minimum freeboard (difference in height between the dam crest and the water level) must be 1.5m (Golder Associates, 2016). However, no document has explained the above values in terms of ability to withstand a 500-year flood. Moreover, no document has explained the required beach width in terms of the ability of the dam to avoid failure after liquefaction (note *the lack of any beach* in Figs. 12a-c).” [p24].

Dr Emerman also recorded that the perimetric canal faced difficulties coping with rainfall in 2010:

“Even the design for the 500-year flood is questionable since the canal was more than half-full on at least two separate dates within four months in 2010 and 2011 (see Figs. 27a-b)” [p21].

Dr Emerman’s approach involved using international best practice, comparing and explaining the significance of three modern North American codes, with more up-to-date guidelines which have more rigorous flood and earthquake design criteria. He explained that they comprise both a risk-informed and a standards-based approach. He then applied those across all aspects of the Atalaya Mining project, especially the technical design safeguarding for the dams’ long-term flood and earthquake resistance, comparing them with both the existing [and also the new] Spanish regulations:

Their [p19/72] “new proposed dam safety legislation aims to bring Spain up to date with the rest of the developed world (Ministerio para la Transición Ecológica [Ministry for Ecological Transition], 2018a-b)”¹⁰.

For Andalusia’s regulators to seek to apply their new more demanding dam standards retrospectively in line with modern practice might pose for them very difficult questions, balancing the possibility of punitive damages under enforced mediation against improving public safety.

Analysing the stability of the waste dams: estimating slope stability

Golder Associates used drilled geotechnical tests and cone penetration test soundings to approximately 30-35m in three locations [fig 13] to evaluate “the liquefaction susceptibility [tendency to contract after disturbance]” of the tailings, and determined that:

“Tailings are observed with *high susceptibility to liquefy* (or experience a significant degradation of their resistance)... Sands with not 100% dense behavior. This confirms the expected variability for *this type of upstream construction with cycloned sand*. Intercalations of siltier sands in a contractive state are observed, which would be

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https://www.miteco.gob.es/images/es/ppproyecto-rd-normas-tecnicas-seguridad-grandes-presas-y-sus-embalses-1-clasificacion_tcm30-452742.pdf and

https://www.miteco.gob.es/images/es/ppproyecto-rd-normas-tecnicas-seguridad-grandes-presas-y-sus-embalses-2-proyecto_tcm30-452743.pdf

susceptible to liquefaction if they are saturated or if their saturation is high (possibly greater than 80%.”

Golder then used commercially available 2D software using a limit equilibrium algorithm which depends on key assumption inputs to calculate ‘factors of safety’ in relation to slope stability, modelled both for ‘static condition’ and post “ seismic liquefaction under the water table” conditions. Unaccountably, the input assumption for the water table height was that it was low, without any evidence of how it was derived. [figs 12a, 12b, 12c]. This produced regulatory appropriate factors of safety.

Dr Emerman observed that:

“The factor of safety takes into account slope stability, but not possible failure due to static liquefaction, flooding or internal erosion. The calculation by Golder is completely irrelevant, since it assumes a low water table (compare with the current water table in Fig. 21)”.

Additionally Golder’s software produced graphics of ‘critical circles of failure’ [p31] which they shared with other consultants, Ramírez and Laín, who argued that this showed:

“All the critical circles occur within the wall (cyclone sand)... This analysis confirms that the stability of the dams is controlled principally by the materials of the wall and is not very sensitive to the resistance of the slimes”.

Dr Emerman contests this [p31/72]. Further, he also strongly contests the argument by Ramírez and Laín that the:

“geotechnical properties of the tailings were irrelevant because failure surfaces would not intersect the tailings, the figure shows the most likely failure surface (base of the hatched region) to be well within the tailings” [figs 12b and 12c].

What is hugely controversial and seemingly outside of all established practice, and only vaguely coherent, is the production by Ramírez and Laín of a *sediments-settling test* from which they infer that the existing tailings dams have a highly effective self-draining capacity, irrespective of the nature of the materials accumulated in them.

The two Spanish academics, Ramírez and Laín, and their sediments settling tests are troubling in that their undocumented tests are also unaccredited. Their connection with their associated Polytechnic University of Madrid is vague and inconsistent. Their test results were shared with other consultants [Golder and with Ore Resources Engineering] and there are fragments of information spread across all the reports. Even more troublingly, despite the lack of clarity as to whether their work was accredited by their associated Polytechnic University of Madrid, they claim that their tests were validated quite separately by their institution, and insinuate that their test conclusions are therefore repeatable [p31/72]. Golder and Ore Resources Engineering also incorporated the highly contentious material as to drainage effectiveness derived by and from Ramírez and Laín. [p27/72].

Contesting the risk of failure

Dr Emerman explains the fundamental significance of the differences between a risk analysis and a slope stability analysis. A slope stability analysis had been undertaken by “Golder Associates” Chile for Atalaya Mining, which was based upon their assessed geotechnical nature of the materials, and in their modelling inputs particularly their assumption as to the height of the water table, in comparison to what Dr Emerman found on inspection, of:

“a water level 2.9 metres below the surface and uncontrolled seepage occurring through the downstream embankment at the same elevation” [p66].

See also Figs 18a and 18b for the significant aspects of uncontrolled seepage at such a height in the Aguzadera Dam.

Dr Emerman further explains that:

“A risk analysis considers all possible modes of failure, as well as the consequences of failure. A slope stability analysis considers only the tendency of a tailings dam to fail by sliding. The slope stability analysis does not take into account the possibility of failure by flooding, internal erosion, seismic liquefaction, static liquefaction or foundation failure... failure due to slope instability or sliding is not even one of the common causes of tailings dam failures.

“Although Golder Associates [2016] did calculate the factor of safety against slope instability following seismic liquefaction below the water table, that calculation did not address the likelihood of liquefaction. Finally, the limit equilibrium method is even more restrictive in considering only the possibility of fragments of the dam sliding over failure surfaces as rigid bodies. Many authors [e.g. Vick, 2002¹¹] have drawn attention to the over-reliance on the analysis of only those failure modes [such as slope stability] for which analytical models and commercial software are available.” [p26]

Golder had produced appropriate factors of safety based upon inputs including the water table location, an input which is contestable but as Dr Emerman stated:

“These factors of safety are well above the minimum $FS = 1.4$ that is required by both the current and proposed Spanish legislation (Agencia Estatal Boletín Oficial del Estado, 2000; Ministerio para la Transición Ecológica, 2018) for dams in Categories A or B.” [p26/72].

Golder did nevertheless advise Atalaya Mining that the fitting of:

“an impermeable layer (red line in figure) will force a lowering of the water table. The upper water table (upper blue line) is the water table that would occur in the absence of an impermeable layer. By comparison with the current water table (see Fig. 21), the impermeable layer is not working as intended.” [fig 14].

¹¹ Vick, S.G., 2002. Degrees of belief—Subjective probability and engineering judgement: ASCE Press, Reston, Virginia.

The company relies on Fig 14 for evidence of the position of the water table but Emerman queries this, below:

“Fig. 14 has been very influential and was sketched for the author at meetings with the Department of Mines of the Autonomous Community of Andalusia and the Province of Huelva. However, I am not aware of any document that actually calculates the position of the water table, so that the water table in Fig. 14 seems to be only a drawing. [p29]

Contested grounds over stored waste

There are contested grounds over the regulators’ condition that Atalaya Mining solidify their new stored waste. The controversial sharing and common adoption by consultants of the tendentious sediments settling tests of Ramírez and Laín were also designed to challenge a regulator-imposed obligation to pre-treat new tailings before dam disposal, i.e. to increase solids content by weight to 50% from the present default position of 35% solids tailings presently being disposed of. This clearly might contribute to the cause of saturation of the two waste dams which is so endangering.

Consequences of failure of the dams

AYESA produced mapping of how a breach at Riotinto would impact the larger settlements in projected movement along the Odiel river to the coast.

Dr Emerman explains that:

“The analysis of the consequences of dam failure by Ayesa (2014) focused on the possible impacts on the city of Gibrleón (population 11,202), 78 km downstream from the tailings dams. However, the village of Sotiel Coronada (population 217) is *only 40 km downstream* from the tailings dams. Since an “urban center” requires only 50 inhabitants, a serious impact on the village of Sotiel Coronada should place the tailings dams at the Riotinto Mine into Category A, according to the existing Spanish dam safety legislation [Ministerio de Medio Ambiente, 1996¹²]. Moreover, any impacts on the mineworkers who could be immediately downstream from the dams at the time of failure should not be neglected. “

Since AYESA stated that the expected impacts on Sotiel Coronada village would occur within two hours, among Dr Emerman’s recommendations is:

“Emergency plans should be developed and implemented for the downstream communities, especially for the communities of Sotiel Coronada and Gibrleón. This is not meant to imply that evacuation of these communities is necessary, but that alert systems, publication of evacuation routes, and other aspects of emergency response should be put into place”. [p67]

Importantly, what is also contested is the likely volume of waste breaking out with dam failure, which AYESA estimate would be no more than 35% of the volume of either

¹² https://www.miteco.gob.es/es/agua/publicaciones/clasificacion_presas_tcm30-216049.pdf

waste dam or the waste water dam. The timing of impacts upon potential failure may need recalculation based upon later modelling equations based upon more data of more recent origin. If the volume escaping through rupture is underestimated, the impact arrival times would also be underestimated.

Conclusions and recommendations

Dr Emerman summarised the potential causes of failure as being liquefaction of unconsolidated contractile sands compounded by internal erosion which is evidenced by high level seepage adjacent to the actual water table.

He estimated the risk of dam failure, in the section “Numerical Probability of Dam Failure due to Liquefaction” [p65/72] as being:

“An annual probability of 15% corresponds to probability of dam failure of 28% over two years, 38% over three years, 48% over four years, and 56% over five years. In other words, there are even chances of dam failure over the next 4-5 years.”

The recommendations of his report [p67/72] , in order of implementation (1 = immediate implementation):

- 1) There should be an immediate cessation to the introduction of more tailings and water to the reservoirs at the Riotinto Mine.
- 2) Emergency plans should be developed and implemented for the downstream communities, especially for the communities of Sotiel Coronada and Gibrleón. This is not meant to imply that evacuation of these communities is necessary, but that alert systems, publication of evacuation routes, and other aspects of emergency response should be put into place.
- 3) Plans should be developed and implemented for the drainage of water from the Aguzadera and Cobre reservoirs and other measures that are deemed necessary to reduce the probability of dam failure. These plans should be reviewed by a team of independent experts prior to implementation. A critical aspect of these plans will be the treatment of the drainage water before it is released into the environment.

A new initiative on tailings dams

There is presently – in the aftermath of the tragic and avoidable disasters in Brazil in Brumadinho in January 2019 and at Fundao-Mariana in November 2015 involving top tier transnational mining companies’ operations [Vale, and in 2015 with BHP as Samarco] and their deficient mining waste management - a growing awareness of the need for the mining industry to improve its processes and practices.

An investors' initiative started by the Church of England's and Swedish pension funds¹³ involved sending out a questionnaire asking for information about these companies' tailings dams in April 2019 to 683 mining companies. This request was then followed up.

Atalaya Mining was one of those mining companies *which did not respond* to these investors' request for information specifically about their tailings dams.

Some of the changes in the draft standard produced by the Global tailings review need to apply to the UK, and the EU and its member-states.¹⁴

LMN will make the case that new, more rigorous, provisions should also apply to existing and dangerous tailings dams such as those of Atalaya Mining in Huelva.

Risk financial guarantees and insurance

Atalaya Mining's annual report in 2017, in "Commercial and financial risks" [pp10-12 /98], stated that "Our insurance coverage does not cover all potential losses, liabilities and damage related to our business and certain risks are *uninsured or uninsurable*".

Since Atalaya Mining's only operating project [or 'asset'] is the Riotinto mine, this must have referred to it, but in what way? Similarly Ore Reserves Engineering [2018] indicated that Atalaya Mining had not, to that time, spent on insurance¹⁵.

The previous right-wing Partido Popular government in Spain had legislated to make the regulatory approach to liability for environmental damage voluntary and negotiable.¹⁶

We were recently informed that:

"Among the many irregularities of Atalaya, they do not have liability insurance. Only a surety insurance to cover social issues of €6 million and another for the restoration plan for €13 million.... There is no insurance for environmental damage as they are not required to provide it. Spain is the third world. In Aznalcóllar they [Boliden] left and did not pay a peseta then." See also this summary, *The Los Frailes tailings dam failure, Aznalcollar, Spain*.¹⁷

It is indicated that Atalaya Mining has received or is due to receive EU finance for restoration works.

¹³ <https://www.churchofengland.org/investor-mining-tailings-safety-initiative>

¹⁴ <https://globaltailingsreview.org/global-tailings-review-launches-public-consultation/>

¹⁵ <https://atalayamining.com/wp-content/uploads/2018/07/RioTinto-July-2018-Complete-Report-Rev-6.pdf>

¹⁶ <http://www.endseurope.com/article/35868/spain-relaxes-its-environmental-liability-rules> [subscriber site]

¹⁷ <https://www.wise-uranium.org/mdaflf.html>

This regulatory insurance process should apply to Atalaya Mining, since toxic mining waste storage is specified in Annex III of the EU Environmental Liability Directive¹⁸ and articles 13 and 14 of the EU Mining Waste Directive.

Why the EU Mining Waste Directive doesn't help¹⁹

The directive has no direct enforcement provisions. Nevertheless the waste management provisions are instructive [articles 5, 7, 11, 12, 13 and 14], may be normative, and may assist national litigation, but the public disclosure provision is very weak.

There are still no effective provisions to specify what should be the optimal requirements for the function of inspection.²⁰

There are also serious text confusions about and operational limitations in what should be reported triennially by Member-states to the Commission's DG Environment B3, who summarise article 18 triennial reporting to the EU Parliament.

Reporting requirements extend only to member-states' aggregated data on waste volumes, numbers of inspection visits, and numbers of waste facilities, in two differentiated categories, category 'A' and 'non-A', and emergency plans - all on a triennial basis.

Vital public right-to-know provisions about external emergency plans of operational or closed category 'A' mining [toxic or dangerous] waste facilities are missing.

Consequently after 11 years since ratification,²¹ *25% of such facilities in the EU are reported not to have such emergency plans.*

Non-compliance regulatory actions by the Commission related to mining in three instances have exclusively used enforcement powers under the EIA directive²². Since mining waste was specifically included in Seveso III Directive after the deadly 2010 Hungarian alumina caustic red mud disaster, its provisions may have become viable. This is conditional on effective inspection being made in the absence of member-state reporting happening.

¹⁸ <https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/responsabilidad-mediambiental/garantia-financiera-RMA.aspx>

¹⁹ <http://ec.europa.eu/environment/waste/mining/legis.htm>

²⁰ Cambridge M The Hydraulic Transport and Storage of Extractive Waste: Guidelines to European Practice Professional Practice in Earth Sciences 24 Feb 2018 ISBN-10: 331969247X ISBN-13: 978-3319692470 See also -wider determination of *inspection provisions* is held to be frozen post Lisbon under Art.4 (3) TEU and Arts.197 (1) and 291(1) TFEU and subsidiarity demands [real and imagined] <https://core.ac.uk/download/pdf/42412283.pdf>

²¹ Commission report on the implementation of Directive 2006/21/EC (COM(2016)0553) **EU Parliament resolution on implementation of the Mining Waste Directive (2006/21/EC) (2015/2117(INI))**

²² In the cases of Romania [dust from a tailings dam] and Germany and Poland [unscoped deep drilling].

The potential for further NGO advocacy in Spain

NGO advocacy in Spain is made difficult by the defects of the national law on project EIAs, where it is left open to project proponents to continue to submit more documentation. They are enabled to present to the regulators what may often be *key project documents* after the public consultation period in which the project can optimally be assessed.

This has meant that advocacy NGOs have inevitably needed to consider using the courts to seek project transparency and stronger proactive remedies. Mainstream media are not reporting on environmental activism.²³

Ecologistas en Accion's history of advocacy on Atalaya Mining's Riotinto mine in the regional courts is shown in the Timeline below, and involves their having to analyse various post EIA [in Spanish, *Autorizacion Ambiental Unificada* or AAU] documents.

Advocacy through the UK regulator of AIM

LMN started to work with the Spanish environmental NGO Ecologistas en Accion in mid-2018. This was during the time of development of our report on the AIM, mining companies and human rights - about such companies' listing on London's secondary stock exchange - the Alternative Investment Market or AIM²⁴. We helped facilitate Ecologistas en Accion and other campaigns to visit London to participate to raise their concerns in the 2018 AGM of AIM [and Toronto TSX-Venture market] traded, Cyprus domiciled mining company Atalaya Mining plc²⁵.

It is noted that the present UK regulatory system is inadequate. The system²⁶ involves an arms-length consultative relationship for listing companies with a LSE-registered 'nominated adviser' [or NOMAD] on which the duty of care is quite low, so that by way of example the NOMAD does not need to read the listing company's project key documents such as EIAs. It is low compared to that on listed companies in the Toronto TSX 'Venture' market which is a bigger market and its listing provisions were changed in 2016 following extensive advocacy directed at the Ontario Securities Commission responsible for listing provisions under National Instrument 43-101 Standards of Disclosure for Mineral Projects [NI 43-101].

It responded to and recognised the significant deficiencies in the reporting and *disclosure of environmental and social aspects* of mining projects by an uncomfortably large number of mining companies encouraged by a lack of clarity and inclusion in the guidelines for disclosure.²⁷

²³ <https://portaldeandalucia.org/opinion/aminer-la-junta-abc-y-los-lodos-de-rio-tinto/>

²⁴ <https://londonminingnetwork.org/wp-content/uploads/2019/03/LMN-AIM-advocacy-paper-April-18.pdf>

²⁵ <https://londonminingnetwork.org/2018/07/ties-are-stronger-now-spanish-campaigners-unite-around-atalaya-agm> See a fuller account: <https://www.ecologistasenaccion.org/107878/cronica-de-una-ecologista-en-la-junta-de-una-multinacional-minera>

²⁶ <http://www.londonstockexchange.com/statistics/companies-and-issuers/companies-defined-by-mifid-identifiers-list-on-lse.xlsx>

²⁷ http://www.osc.gov.on.ca/documents/en/Securities-Category4/ni_20160509_43-101_mineral-projects.pdf

Similarly potential investors are badly served by lack of information under the UK's present low and partial implementation of the EU 2014 Non-Financial Reporting Directive which would otherwise impose a due diligence requirement.

Advocacy with lobbying investors

There are some present limitations. Atalaya Mining's two main shareholders – the private company Trafigura²⁸ operating as "Union Holdings [Malta] Ltd) and GMK Holding Co. Ltd China (operating as "Yanggu Xiangguang Copper Co Ltd China and its fourth Orion Mine Finance Fund 1LP) all have both equity holdings and production off-take contracts.

Ore Reserves Engineering [2018]²⁹ also indicates that Atalaya Mining is exempt from paying production royalties. On the face of it, this would optimally facilitate a potential for reduced tax yields through the potential use of 'transfer pricing'.

Timeline of Atalaya Mining's RioTinto mine and opposition to it

Operations History

The pollution of the rivers and the environment has been closely linked to breaches and leaks in the processing. The mining activity at Riotinto has been accompanied by a series of accidents and leakages.

09/02/1999: Exploitation works of the Riotinto Mine were suspended. The exploitation left a complex of waste dams abandoned, divided into three sections called Aguzadera, Cobre and Gossan. During the 90s, in addition to the sludges of mining activity, chemical wastes were illegally discharged into the dams.

05/2007: EMED acquired the option to the mining rights of "Proyecto Riotinto". Today Atalaya Mining PLC owns the mine via its wholly-owned Atalaya Minas de Riotinto Project (UK), Ltd. and its Spanish subsidiary Atalaya Riotinto Minera, S.L.U.

27/03/2014: Proyecto Riotinto was authorized to operate for 10 years. The environmental authorisation [in Spanish, *Autorizacion Ambiental Unificada*, or AAU] was signed by Jesús Nieto González, General Director of Prevention and Environmental Quality of the Junta de Andalucía. The AAU required the company to use a sand wall regrowth system for the waste dams and to thicken the waste sludge [to be] placed in the two tailings dams to or beyond 50% solids during its first 5 years, and to 65% during the following 5 years. For that purpose, it was necessary to build a plant to thicken the sludge that to this date has not been built. It was also reported in the media that under Atalaya's management the number of spillages in Riotinto became so bad in 2011 that the shared owner of the tailing dams, Rumbo, took control of the dams after Atalaya's negligence.

11/04/2014: The Resolution of the General Director of Industry, Energy and Mines authorized the transmission of mining rights to EMED Tartessus S.L.U.

31/07/2014: Ecologistas en Acción started legal action before the 1st Section of the Administrative Litigation Room of the TSJA (High Court of Justice of Andalusia) against the AAU.

23/01/2015: Resolution authorized restoration works of Riotinto by the company EMED Tartessus S.L.U. It was signed by the General Director of Industry, Energy and Mines, María José Asencio Coto and contains the condition that: "The waste material or sludge to fill the dams would have to

²⁸ <https://en.wikipedia.org/wiki/Trafigura> Additionally, Guardian articles in 2018 referred to a Global Witness report: <https://www.globalwitness.org/en/campaigns/corruption-and-money-laundering/friends-low-places>

²⁹ <https://atalayamining.com/wp-content/uploads/2018/07/RioTinto-July-2018-Complete-Report-Rev-6.pdf>

be concentrated at 50%." It also imposed "spinning" or cycloning as a construction method for the dam. The expected storage capacity of the sludge to be added to the existing sludge is 17.8 million tons in the Cobre section and 15 million tons in the Aguzadera section: In total 32.8 million tons for the first 5 years.

02/03/2015: The mining activity restarted, and Ecologistas en Accion [EA] denounced the illegal construction of several mining ponds within the Cerro Colorado mining area. The resulting sanction was appealed by the company and in 24/01/2018 the sanction was confirmed by the Court of Huelva.

30/09/2015: EA began before the Administrative Contentious Chamber of the TSJA [appeal 780/2015 against the resumption order], which is currently pending judgment of appeal 519/2014. A positive verdict would result in the immediate stoppage of the project.

28/12/2015: The resumption of the waste deposit activity in the Gossan, Cobre and Aguzaderas dams was authorized.

14/04/2016: The Territorial Delegation of Huelva halted the deposit of muds in the dams of Riotinto due to the breach of the condition that it had to be concentrated at 50% solids, after verifying that the existing solids were only 30%.

14/12/17: £31 million is raised in the financial market for the expansion of Riotinto. This expansion included the building of a hydro-cycloning plant, which hasn't been done to this date.

13/04/18: 55% of the Riotinto tailing dams are owned by Rumbo 5.Cero, S.L. ("Rumbo") with whom Atalaya originally entered a joint venture to evaluate the potential class B silver and gold resources. Atalaya entered into a royalty agreement with Rumbo for the use of the dams. In early 2018 it agreed to buy out Rumbo by issuing new ordinary shares. [This is also noted by Atalaya as "Astor"].

24/04/18: Coinciding with the 20th anniversary of the collapse of the Aznalcollar dam, the five main environmental NGOs in Spain gave grave warning of the imminent collapse of the Riotinto tailing dams, which would cause a flood of toxic waste ten times larger than the breakage of Aznalcóllar dam 20 years ago.

27/06/18 At Atalaya Mining's AGM, EA drew attention to the threats posed by the bad state of two of the Riotinto dams.³⁰

26/09/18 Judgment of TSJA on the law suit filed by EA against the Government of Andalucía ("JdA") and Atalaya Mining, as co-defendant, annulled the Unified Environmental Authorization ("AAU") for a breach of the right of interested parties to be heard in the proceedings leading to the AAU, contrary to Spanish legislation on transparency and public consultation procedure. Atalaya Mining continued to mislead its investors by informing them that the Spanish court had ruled that the AAU was "correct", and that therefore mining operations did not have to be suspended.

21/03/19 Judgment of the Supreme Court confirms the above decision.

11/04/19 Judgment by TSJA annulled the administrative decision of 23/01/15 that work in the mine could restart. In other words, the Atalaya Riotinto mining complex currently has no environmental licence nor mining licence in order to continue running.

14/11/19 Judgment of the Supreme Court confirms the judgment by TSJA of 11/04/19. *This is still awaiting the Court's preparing their order to, and serving it on, Atalaya.*