

# **REPORT**

## **concerning**

### **the Impact of the *Ada Tepe* gold mine, Eastern Rhodope Mountain, Bulgaria, on the hydro morphological status of Krumovitsa River**

#### **Introduction**

This is an independent monitoring report concerning the performance of the most modern mining enterprise developed in Bulgaria in the last years - the *Ada Tepe* gold mine near the town of Krumovgrad in the East Rhodope Mountain. Based on the research and recommendations in the EIA and AA reports concerning the investment plan, it is declared by the experts that the development of *Ada Tepe* - Alternative No1 - will not cause significant adverse impact on the Krumovitsa River ecosystem and on the Natura 2000 Habitats Directive Site *Rhodopi-Iztochni BG001032*.

This report elaborates in detail the findings of a monitoring field visit, testing of sludge samples, correspondence with competent environmental authorities and analysis of the implementation of the ESIA/AA recommendations. Based on these, the main conclusions are:

- surface water cycle at the mining area is not completely closed and part of the surface rainwater is discharged into Krumovitsa River untreated;
- not all surface waters are collected and treated before discharge into Krumovitsa river in contradiction to the EIA recommendations;
- the section of the riverbed in close proximity to the mine has a layer of sludge on the bottom, which contains Arsenic and other metals exceeding the EQS limits for sediments;
- the Monitoring Plan of Ada Tepe project is insufficient as far as surface water management is concerned;
- future plans for exploration and potential mining development in the area of Krumovgrad and the *Rhodopi Iztochni* Natura 2000 site contradict the Appropriate Assessment of the Ada tepe project and threaten the integrity of the site.

Full compliance with the recommendations and conditions specified in the *Ada Tepe* EIA/AA reports is of crucial importance in order to avoid environmental deterioration, especially in view of the large scale investment plans for the development of other future mining projects in the municipality of Krumovgrad, falling at the same time within the boundaries of the same Habitats Directive Site *Rhodopi-Iztochni BG001032*,

Moreover, at the moment there is an ongoing procedure in the East Aegean River Basin Directorate (EARBD) concerning a new Water Permit allowing the discharge of treated waste water into the Krumovitsa River with quantities two times bigger than the specified in the EIA Report. Respectively, this means that the negative impact on the ecological and chemical status of the receiving surface water body is going to be doubled in contradiction with the parameters assessed in the EIA report.

Therefore, any deviations from the approved EIA and AA reports that may occur or can be identified, should be reported to all interested parties at the earliest stage possible, starting with the investor, of course. In this way some necessary recommendations, aiming at possible improvement of the performance of *Ada Tepe* in the operational stage may be taken into consideration in due course and positive

conclusions for the future mining development in the area concerned can also be drawn.

For these reasons, a field study of Krumovitsa River below the *Ada Tepe* mining area was carried out on November 13th 2020. The study covered a river section starting 1.0 kilometer above and ending 2.0 kilometers below the south sump of *Ada tepe* gold mine.

Presence of fish was registered along the entire studied section of the river. Traces of otter */Lutra lutra/* were also registered, which is another positive sign.

At the same time on the bottom of the riverbed and on the banks alongside the river as well, unusual for this type of river accumulation of sludge was also registered below the mining area. Not typical amount of sludge on the riverbed bottom was clearly noticeable below the *Ada Tepe* sumps and decreased with distance away from the mining area downstream.

Having in mind that four of the drinking groundwater water sources for the municipality of Krumfovgrad are located in the terraces below the mine downriver, the registered sludge should be sampled and tested for pollutants, the source should be identified and measures to avoid further accumulation should be undertaken in due course

The hydro-morphological pressure registered during the field study will also be discussed in the light of the relevant national and European legislation.

*Ada Tepe* mine was financed by the EBRD and the enterprise should operate in line with the bank's own ESP, in addition to Bulgarian, EU and UN standards and good international practice. This study is fully independent and, therefore, it can hopefully be considered as partial post construction monitoring of the performance of the EBRD client, Dundee Precious Metals.

## **Acronyms**

MOEW - Ministry of Environment and Water

EARBD – East Aegean River Basin Directorate

RIEW - Regional Inspectorate of Environment and Water

DPM – Dundee Precious Metals

EBRD – European Bank for Reconstruction and Development

SEA – Strategic Environmental Assessment

AA – Appropriate assessment

EIA – Environmental Impact Assessment

EQS – Environmental Quality Standard

ESP – Environmental and Social Policy

WFD – Water Framework Directive of the EU

WA - Bulgarian Water Act

TFEU -Treaty on the Functioning of the European Union

## **I. Field study and results.**

General scheme of the entire mining area with all operational facilities can be found in the EIA documentation, uploaded on MOEW internet register of all AIA/AA procedures in Bulgaria:

<http://registers.moew.government.bg/ovos/lot/7560>

For easier access the general scheme of the facilities of Ada Tepe mine in PDF format can also be found here:

[https://dams.reki.bg/uploads/Docs/Files/ADA\\_TEPE\\_plan.pdf](https://dams.reki.bg/uploads/Docs/Files/ADA_TEPE_plan.pdf)

Dundee Precious Metals has disclosed the ESIA package on its web site, together with Water Monitoring reports for Ada Tepe Prospect of the Khan Kroum Deposit for 2015, 2016 and 2017, which can be found here:

<https://www.dundeeprecious.com/English/Operating-Regions/Current-Operations/Ada-Tepe/Documents/default.aspx>

The field study took place on November 13th 2020 /Friday/ and covered 3.0 kilometers long section of the Krumovitsa River, starting 1.0 kilometer above and ending 2.0 kilometers below the south *Ada Tepe* sump, built in a small gully tributary to the Krumovitsa River. All in all the presence of two sumps was registered close to the main river, in compliance with the general scheme. They are both looking alike:



This picture, taken bottom up from the riverside, shows the north sump. Big exhaust pipes /in the ellipse/ are clearly visible at the left hand top corner of each barrage, with one possible purpose: to play the role of spillways. The entire mining area, including the sumps, can be watched in the following video, shot with a drone:

<https://www.youtube.com/watch?v=pEvCHLi846c>

The south sump below the *Ada Tepe* Waste Management Facility is more clearly visible in the following video at 4:20 minutes from the start:

<https://youtu.be/Ev6yqJv7eaw>

According to local people interviewed during the field study, in the summer and early autumn of 2020 Krumovitsa River was dry down to the bottom in the inspected river section, due to insufficient rainfall and lack of seasonal runoff.

Krumovitsa River and its tributaries fall within the "drying type of rivers" with code R14 - Submediterranean small and medium rivers in Eco region 7, Eastern Balkans, according to the East Aegean River Basin Management Plan 2016-2021.

To confirm the fact, according to the AA Report /page 24/ the river:

*"...shows strong water flow fluctuations - from very high around February-March, to almost complete drying in July-August (except for individual pools)."*

The *Ada Tepe* AA Report /in Bulgarian/ can be found here

[https://dams.reki.bg/uploads/Docs/Files/Ada\\_Tepe\\_Final\\_Report\\_BG\\_Dopalno.pdf](https://dams.reki.bg/uploads/Docs/Files/Ada_Tepe_Final_Report_BG_Dopalno.pdf)

**The fact that the river often gets dry was also confirmed during the field study in November 2020**, when some very small water flow was running in the riverbed. Judging from the presence of cracked sludge on the bottom of the riverbed and the thickness of the sludge layer, reaching 10cm. at some points, it is obvious that:

1. The river was dry not long before the time when the field study took place, because fine bottom sediments and sludge can never crack if they stay under water all the time.
2. Unusual amount of sludge is accumulated on the riverbed bottom and on the riverbanks, while the presence of such layer of sludge is not noticeable above the affected river section. On page 45 of the EIA Report the following warning is shared:

*The increased sediment discharge in rivers and streams has negative impact on the aquatic biota, as sediments cover river bottoms and aquatic vegetation, and prevent the penetration of sunlight.*

Obviously, the macrozoobenthos community in the riverbed section below the mine will be the most affected.

This is a warning in the EIA Report that appropriate measures to prevent accumulation of sludge should be undertaken during the construction phase of the project's implementation. It is even more valid for the operational phase. The issue was not addressed in the EIA report and adequate mitigation measures were not planned.

Here is a short video proving the presence of cracked bottom sludge in the riverbed under the water below the mining area, close to the north sump:

<https://www.youtube.com/watch?v=tTs5qMyBrJ4&feature=youtu.be>

For the aim of this study samples of the bottom sludge were taken from the south river bank close to the watercourse during low water conditions, from a spot with approximate coordinates - 41.432816 / 25.663494.

These samples were tested in a licensed laboratory only for the presence of some metals. As there is no official EQS concerning metal contents in river sediments, neither Bulgarian, nor European, the results are compared to the national Standards of Romania and the Netherlands, which are very similar to the relevant USA Standard. Here is the table of results:

Metal	Units	Result	EQS /Romania/	EQS /Netherlands/
Arsenic /As/	mg/kg	<b>36.36 ± 5.45</b>	29	29
Manganese /Mn/	mg/kg	861.0 ± 129.2	—	—
Copper /Cu/	mg/kg	30.84 ± 4.63	40	36
Nickel /Ni/	mg/kg	<b>46.37 ± 6.96</b>	35	35
Lead /Pb/	mg/kg	13.92 ± 2.09	85	85
Zinc /Zn/	mg/kg	96.0 ± 14.4	150	140

The laboratory results can be found here:

[https://dams.reki.bg/uploads/Docs/Files/ADA TEPE SEDIMENTS.pdf](https://dams.reki.bg/uploads/Docs/Files/ADA_TEPE_SEDIMENTS.pdf)

Apart from the other metals, the presence of Arsenic is the most disturbing as it can hardly be explained by natural processes and because upriver of the *Ada Tepe* mine there are no other industrial undertakings of any kind. At the same time, Arsenic is mobile and highly toxic.

As stated above, four of the drinking groundwater sources of the Krumovgrad municipality are located close to the town in the terraces of Krumovitsa River below the mining area acc. to the data in an East Aegean River Basin Directorate's (EARBD) letter during the EIA preparation. During the series of public consultations on the Ada Tepe project between 2006 and 2011, local people and independent experts have raised the questions of possible arsenic pollution of Krumovgrad's drinking water on numerous occasions.

It should also be taken into account that the groundwater body in the area is in direct contact with the surface waters of Krumovitsa River.

Here is a special warning on the matter, specified on page 5 in the final decision of MOEW on the approval of the *Ada Tepe* EIA/AA Reports:

***"These are pore ground waters directly connected with the waters of the Krumovitsa River and, therefore, the quality of the waters in the river is crucial for the quality of the waters of the groundwater body BG3G000000Q010..."***

Usually, Arsenic contents in sediments of rivers in natural status - not affected by industrial pollutants - are not expected to exceed 10mg/kg. It should also be expected that during the EIA procedure the problem must have been identified and

taken care of, with appropriate measures recommended, in case the EIA/AA experts managed to notice the presence of sludge below the mining area, which they didn't.

If the sludge was present at the time, it should have been registered in the baseline, sampled and tested, and the source should have been identified, in order to be taken for reference during future monitoring studies on the impact of the mine.

**This is a matter of crucial importance** - any kind of accidental river pollution may come and go in a very short period of time, thus it can remain unregistered by local people and by the competent authorities - when samples from the water in the river are taken and tested. But if some metals are discharged together with the surface waste waters occasionally coming from a mining area /or from somewhere else/ only during heavy rainfall, metal traces are expected to be found mainly in the bottom substrate and, depending on the quantity of pollutants and the duration of exposure, possibly in the aquatic fauna like fish, crabs etc. For example, fish species often get in contact with the bottom substrate, therefore taking and testing tissue samples from the fish is quite reasonable in such cases. However, having in mind that the river often gets dry and fish is obviously migrating, the only 100% reliable indicator is the bottom substrate.

This doesn't mean that if the problem was available and registered during the preparation of the EIA and AA reports, it should have been underrated and/or neglected. These reports are the best that we have ever encountered in our long practice with such reports in Bulgaria and it would be very strange if the experts didn't see the sludge.

Still, the problem was not addressed in the EIA/AA Reports for one reason only - it is stated many times in the report that all industrial and surface waste waters, including rainwater accumulated in the whole mining area, will be collected, treated properly and will be reused in a returning cycle afterwards, but this particular issue will be discussed in the next section.

While the presence of a large amount of sludge in the riverbed was not registered in the EIA/AA Reports and no measures were proposed, an obvious question should be answered - when and where did the sludge come from?

Part of the answer is easy, judging from the satellite pictures downloaded from Google Earth during the construction phase - the date of the following picture is July 22nd 2018, when massive discharge of mud flowing into the river is clearly noticeable under the North sump:





**NOTE:** To be enlarged and studied in detail, all the pictures shared in this report can be downloaded from the following link:

[http://gallery.balkanka.bg/s/users/pitcha/ADA+Tepe/2018\\_07\\_22\\_A.jpg.html](http://gallery.balkanka.bg/s/users/pitcha/ADA+Tepe/2018_07_22_A.jpg.html)

And here is a very short video much more clearly displaying the natural state of the area before the construction stage and afterwards:

<https://www.youtube.com/watch?v=ZqCsM39MKNM>

Normally, it is not expected and usual that metal pollutants may reach the river only during the construction phase of a mining enterprise processing metal ores. Water samples, taken from the rivers below all the other mines in the East Aegean River Basin usually show metal contents exceeding the limits hundreds of times, according to the monitoring data in the River Basin Management Plan 2016-2021.

In a long communication with the state authorities we were informed by the competent Regional Inspectorate for Environment and Waters (RIEW) in the town of *Haskovo* that a thorough inspection of the mining area took place on November 25th 2020. The inspection discovered that some of the surface waters are discharged directly into the river during rainfall, without any treatment whatsoever. The letter of RIEW *Haskovo* /in Bulgarian/ can be downloaded from the following link:

[https://dams.reki.bg/uploads/Docs/Files/ADA Tepe RIEW ANSWER.pdf](https://dams.reki.bg/uploads/Docs/Files/ADA_Tepe_RIEW_ANSWER.pdf)

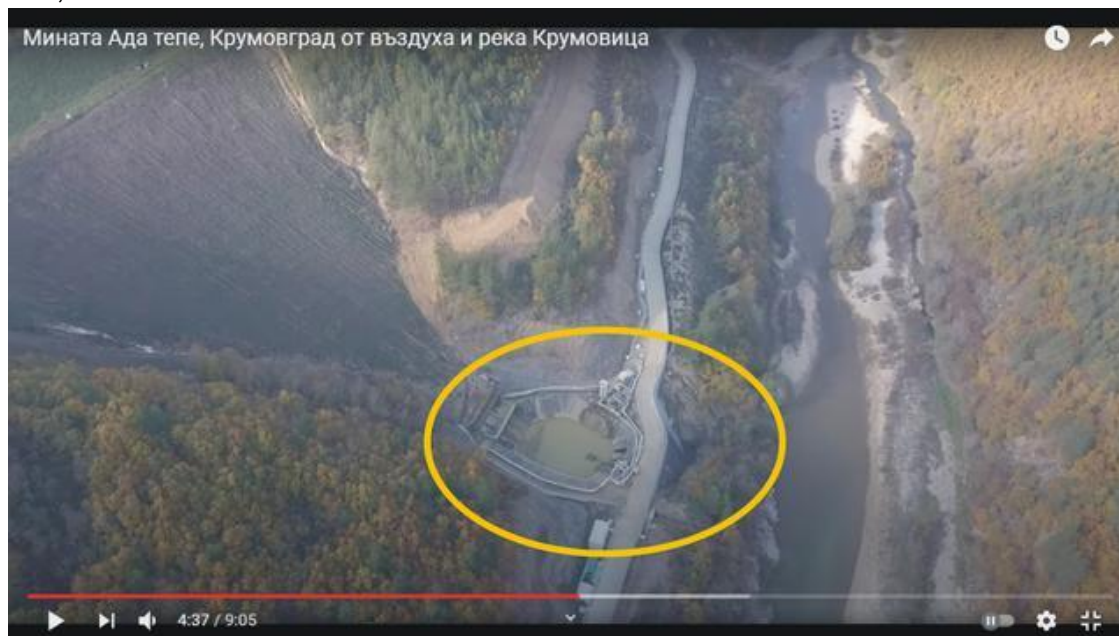
**On page 2 of the RIEW letter the following statement can be found:**

*"The north and the south sumps are divided in two with concrete partitions and drainage waters from the working cells are getting into the right hand part, while non contact rain waters from the area of the site remaining intact by the construction, are getting into the left hand part of the sump.*

*If need be, non contact rainwater can be diverted through an open concrete channel to the Krumovitsa riverbed...*

*... At the connection point of the rainwater channel to the southern sump there are traces of discharge due to the last rain...*"

Please note that the south sump holds a really small amount of water during our field visit, carried out on November 13th 2020:



This picture is displaying the undisputed facts that:

1. There is enough volume to collect additional rain waters instead of discharging them directly into the riverbed.
2. There is no partition wall in the sump, while the presence of such partition is claimed in the letter of RIEW *Haskovo*.

Dumping surface waters /no matter contact or "non contact"/ from the industrial mining area is in large contradiction with the expert statements and recommendations in the EIA Report, but this matter will also be discussed in the next section. At this point it is hard to understand why only a small part of the surface rain waters are collected and reused if they are really pure enough, while groundwater quantities are pumped from the terraces of the river as a source of fresh water.

Using rain water in a closed cycle will lead to much more prudent and effective utilisation of the natural resources as it is required by article 191 TFEU /literally transposed in articles 2 and 2a of the Bulgarian Water Act/ and will reduce the pressure on the groundwater body in return. At the same time the operational costs for the investor will also be reduced, not to mention that collecting surface rainwater during heavy rainfall can bring multiple other benefits.

According to the letter of RIEW *Haskovo*, some part of the "non contact" rainwater is collected in the sumps, while another part is dumped into the river even when the sumps are empty, because in the same letter on page 1 RIEW states that the south sump was only 21% full at the time of their inspection...



**Based on the findings above, currently it is obvious that the main source of sludge was formed during the construction phase of the project's implementation.**

However, possible pollution during the operational phase cannot be discarded completely.

Therefore, the reason for the registered presence of metals in the sludge exceeding the EQS for river sediments needs to be studied thoroughly, because the chemical status of the surface and the groundwater bodies in the area concerned is set at risk. It is of no wonder why the fresh groundwater source of *Ada Tepe* mine itself is located in the terraces of Krumovitsa upstream, instead of downstream of the mine - where the drinking groundwater sources of the city of Krumovgrad are situated.

Dumping surface rain waters /whether "contact" or not/ with unknown chemical contents from the industrial mining area directly into the river should not be allowed. Otherwise, these waters should also be tested. Dundee Precious Metals has not published water monitoring reports since 2017 and it is unclear if such monitoring is carried out by the company, by the EBRD or by their consultants.

Next year we promise to test the surface waters discharged during rainfall, if the competent state authorities refuse to fulfil their duties, as they are obliged to by the relevant legal framework.

Actually this is already happening - unlike RIEW *Haskovo*, for more than two months now EARBD is still refusing to conduct a field inspection and to check the performance of *Ada tepe* mine for compliance with the Bulgarian Water Act and the underpinning national documents in legal force. In the most corrupt EU Member State, however, such refusal is of no surprise at all, but we are sure that EARBD is not doing any favor to the investor, because underrated problems always tend to grow.

If one day the Arsenic contents in the drinking water of Krumovgrad exceed the limits, we will remind EARBD their current indolence, although then it will be too late.

And if some day EARBD conducts an inspection of their own, we will be happy to share the results immediately with all interested parties.

### **IMPORTANT**

In accordance with the national regulatory legal framework, a Monitoring Plan of the performance of *Ada Tepe* mine was prepared by the investor and consequently received green light from the competent authorities. This Plan can be found on both MOEW and EBRD internet sites.

After a thorough review of the Plan, the following shortcomings were discovered.

1. The Monitoring Plan disregards the possible discharge of surface rain water contaminated with dissolved and undissolved substances into the Krumovitsa River during the construction phase.
2. The Monitoring Plan also disregards the possibility that during the operational phase "non contact" surface waters, coming from an industrial mining area and

dumped without treatment into the river, may possibly contain pollutants of some kind.

3. Concerning the potential chemical pressure, only surface and ground waters monitoring is planned. Monitoring of river sediments is not taken into consideration at all.
4. Monitoring based on testing tissue samples taken from the fish fauna in the river is not considered in the Monitoring Plan either.

According to section 8. *Water Monitoring*, the Plan includes 9 stations for surface waters, 17 stations for ground waters and 6 stations for industrial waste water.

None of the surface stations is located in the Krumovitsa River right below the mine, but even if there was a station, water samples from these stations are taken and tested only once a month, thus they may happen not to register accidental pollution. They may not register pollution during heavy rainfall as well, when the quantities of pollutants may be considerable, but concentrations are small.

It was already mentioned above - accidental surface water pollution may come and go in a very short period of time during rainfall. It may remain unregistered even by the investor during the implementation of the Monitoring Plan. The only possible sources of information that such kind of pollution may happen accidentally - with heavy metals for example - are the sediments and the aquatic fauna in the river.

**Another very important fact** that needs some explanation is specified in the *Ada Tepe Annual Water Monitoring Report 2017*, i.e. during the construction phase:

[https://s21.q4cdn.com/589145389/files/doc\\_documents/BG/%D0%95%D0%BA%D0%BE%D0%BB%D0%BE%D0%B3%D0%B8%D1%87%D0%BD%D0%B8%D0%B4%D0%BE%D0%BA%D0%BB%D0%B0%D0%B4%D0%B8/Water-Monitoring-Report-2017\\_Final.pdf](https://s21.q4cdn.com/589145389/files/doc_documents/BG/%D0%95%D0%BA%D0%BE%D0%BB%D0%BE%D0%B3%D0%B8%D1%87%D0%BD%D0%B8%D0%B4%D0%BE%D0%BA%D0%BB%D0%B0%D0%B4%D0%B8/Water-Monitoring-Report-2017_Final.pdf)

According to the Dundee Precious Metals' report, pages 22-23, groundwater monitoring station **EGW 03** /coordinates E 386986 ; N 4588201 - to the West of the mine/ has shown serious fluctuations in the Arsenic contents - from inside the limits, to **4.6** times above the limits. The only explanation found by the expert in the report is that:

*"Probably the appearance of iron, manganese and arsenic ions above the permissible levels of the quality standard /EQS/ is due to the groundwater levels reaching easily soluble fractions of minerals containing these metals."*

However, there is another probability, namely that the appearance of metals in the groundwater is highly dependent on the seasonal rainfall, on potential surface waters' pollution and on the direct contact between surface and groundwater. This is much more likely to be the true explanation, because the difference of groundwater levels' fluctuation registered was too small - around 30cm only.

**The good news** is that the readings of one of the monitoring stations at a drinking groundwater source - EGW 12 in the terraces of Krumovitsa, 2.6 kilometers to the North of the mine, were inside the limits in 2017 according to the Annual Report.

These readings can be used as referent parameters for any future water quality monitoring.

**Based to the above, it is undisputed that Arsenic is present in the mining area and in its vicinity, therefore proper monitoring using all indicators possible /including river sediments and fish/ is so important in order to prevent pollution and to rectify it at the source at the earliest stage possible.**

**NOTE:**

In the end of this section it should also be noted that the hydro morphological and the potential chemical impact was the main objective of the field study. Assessment of the impact on fish fauna and on the other aquatic species did not fall within the scope of this particular study. However, the presence of fish was clearly visible in most of the pools along the river below the mining area, showing that the water running in the riverbed was not heavily polluted at the time of our field visit, when weather was dry and surface rainwater was not discharged into the river.

Another positive sign was the presence of fresh traces of otter excrements alongside the river, registered some 350 meters upstream of the south sump. Here they are:



These traces come to prove that there still is sufficient nutritional base for the otter, which was not chased away from the surrounding area after more than one year of operation of the mine.

## **II. Compliance of the *Ada Tepe* mining area parameters with the conditions and recommendations specified in the EIA and AA Reports**

The whole long lasting EIA and AA procedure was finalized back in 2011. Full documentation in Bulgarian is available in the Register of EIA/AA procedures of the Bulgarian Ministry of Environment and Waters:

<http://registers.moew.government.bg/ovos/lot/7560>

After a thorough review of the chapters concerning water management, river and biodiversity protection, the following discrepancies between the EIA and AA reports and the actual project implementation were found:

1) It is written in the EIA report (page 185) that the following measures should be undertaken during the construction phase to minimize the risk of surface flow contamination:

- *Construction of temporary drainage ditches for collecting and diverting surface flows from the construction sites;*

- *Construction of temporary precipitators to collect water contaminated with undissolved substances (soil and subsoil material) for its purification, before its discharge into the river.*

**Comment:** From the picture on page 5 displaying the erosional flows it is obvious that these measures were either not taken, or were insufficient, or they did not work during the construction phase. It should also be underlined that EIA experts are not discussing possible discharge of metal contents together with the subsoil material, which is only normal not to be expected during the construction phase hence metals must have come from somewhere else, eventually from the mine during the operational stage.

2) It is stated many times in the EIA report (pages 48, 82, 201/203, 288, 294 etc.) that during the operational phase all industrial, mining, surface and faecal wastewaters will be collected, precipitated and purified before they get discharged into the river. Numerous statements are leading to the conclusion that all kind of waste waters, including surface rainwater, will be captured, collected, purified, precipitated and reused, and the eventual excess of water will be dumped into the river through a pipeline only after proper treatment. Here is just a short citation from page 284 of the EIA Report:

*A review of the technology for development of the mining area in line with Alternative 1 defines the drainage and rainwater tank as the only possible organized source of potential water and soil pollution...*

*... Waters from the tank will be returned to circulation and excess waters will enter the precipitator before they are discharged into the river. Such discharge will be required mainly during heavy rainfall.*

**Comment:** According to the letter of RIEW Haskovo surface rainwater is dumped directly into the river during rainfall right below the mining area at the south sump, even when it's empty. The fact is in large contradiction with the EIA conclusions. The possible negative impact on the riverine ecosystem, on the surface and on the groundwater bodies has been discussed already in the previous section. Therefore, additional measures concerning the surface waters from the mining area should be undertaken in due course.

3) Concerning the operational phase, according to the EIA report (page 48) the expected total quantity of waste water is **4.5 l/sec**, which can rise up to **15 l/s** at the most during extreme events, such as heavy rainfall (in case of an event with a probability of 1:100). These are the waste water quantities, expected and declared to be dumped after purification to an acceptable extent into the river, which were assessed in the EIA report.

**Comment:** Yet, at the moment there is an ongoing procedure in the East Aegean River Basin Directorate (EARBD) concerning a new Water Permit allowing the discharge of treated waste water into the Krumovitsa River with quantities two times bigger than the specified in the EIA report. Respectively, this means that the negative impact on the ecological and chemical status of the receiving surface water body is going to be doubled in contradiction with the parameters assessed in the EIA report.

**5)** Currently DPM has many future investment plans in the same affected area of the Krumovgrad municipality. This is confirmed by the regular applications for other exploration permits in the last years. These intentions are in large contradiction with the conclusions and recommendations in the AA Report for the impact of *Ada Tepe* mine and its implications on the Natura 2000 Habitats Directive Site *Rodopi- Iztochni BG0001032* conservation objectives.

In section 4.4.1 (page 48) of the AA report the following important warning is included:

*Possible cumulative effect will occur in case of new developed mining sections and in case of appearance of other investors in the region, which will cause significant negative impact at Site's level.*

The same recommendation is written down in a more specific way in section 5 of the report (page 66), where mitigation measures are discussed. Here is a short citation:

*Other investment proposals in the Site concerned within the territory of the municipality of Krumovgrad, which affect habitats and species - subject to protection in the Site, or are located within the Site or within a radius of less than 100 m from its borders, in the expected area of impact, that may have cumulative or synergistic with the expected impacts of this investment proposal effect, should not be allowed.*

*Expected benefit: Elimination of the cumulative effect of increased anthropogenic pressure on this part of the Rodopi - Iztochni Habitats Directive Site, as well as on the Site as a whole, and preventing any further negative impacts on the habitats and species within the Site.*

**Comment:** The quality of the Ada Tepe AA report is indisputable. It is the best that we have ever encountered in our long practice.

Obviously, the recommendations cited above mean that only *Alternative №1*, which is with reduced mining development area /85 hectares/ in comparison to *Alternative №2* /160 hectares/, if only the *Ada Tepe* mining section is developed, is acceptable in terms of the expected cumulative effects on the Natura 2000 Site concerned within the boundaries of the municipality of Krumovgrad. Any future enlargement of the *Ada Tepe* mining section beyond *Alternative №1*, or any future development of any of the rest five mining sections of the *Khan Krum* concession field, which fall within the boundaries of the municipality of Krumovgrad, will have significant negative impact on the Natura 2000 Habitats Directive site *Rodopi - Iztochni BG0001032* conservation objectives.

**These were the conditions under which the AA report for the *Ada Tepe* project was approved and the project itself received green light to proceed.**

Yet, regardless of the above recommendations, the website of the Bulgarian Ministry of Environment and Waters (MOEW) shows that the above conditions are not met by



the investor. *Khan Krum* mining field consists of six mining sections according to the information on the concession contract, specified on page 2 of the AA report. These mining sections are - *Ada Tepe, Kaklitsa, Kupel, Sarnak, Sinap and Skalak*.

According to a letter of MOEW to the investor regarding further exploration activities within the concession field *Khan Krum*, Dundee Precious Metals is instructed to conduct another brand new AA procedure concerning three of the other mining sections - *Sarnak, Sinap* and *Kaklitsa* of the *Khan Krum* mining field:

<https://www.moew.government.bg/static/media/ups/articles/attachments/NSZP-319%20ot%2007.08.20192714bd2871bc52f6c7b1a5d468e21fbe.pdf?fbclid=IwAR3Q4dVJAAamDOfgm7pSC1HBZGPP4erZFlvbotRAvhZUGhoSKS0WdfhBRKY>

Furthermore, apart from the *Khan Krum* mining field, Dundee Precious Metals holds permits for metal search and exploration in another 6 (six) mining fields like *Khan Krum*, according to the register of these permits of the competent Ministry of Energy. These large exploration fields are registered under the following names: *Chiirite, Divna, Dalbokata reka, Elhovo, Lada* and *Yarilo*. DPM subsidiary - *Balkan Mineral Mining* holds another exploration permit for another big mining field named *Iran tepe...*

*Lada* and *Yarilo* mining fields received already green light from the Ministry of Environment without an Appropriate Assessment procedure required for the exploration phase and the search for gold can start any time now.

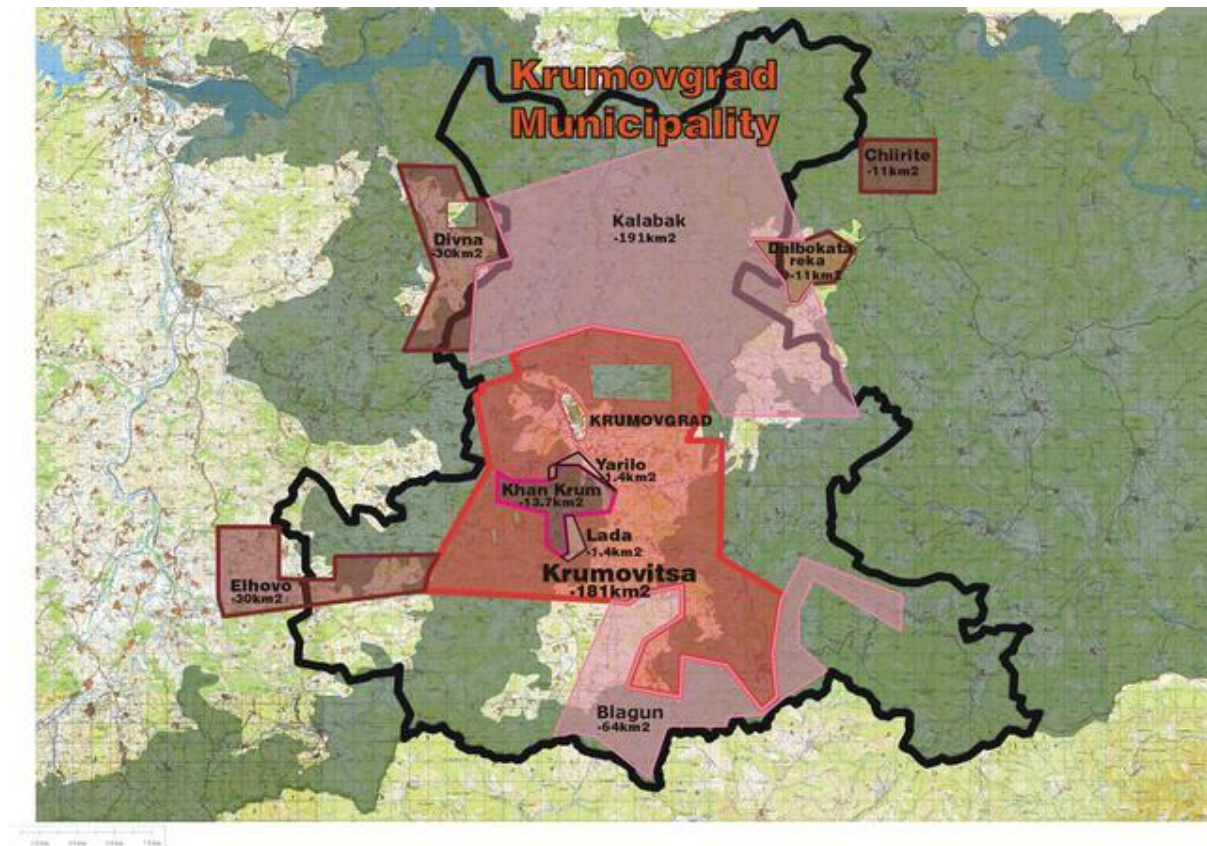
Only for *Elhovo* and *Chiirite* mining fields the same ministry required in the end of November 2020 from the investor an Appropriate Assessment procedure to be carried out.

Except for the *Chiirite* mining field, each of the other five new mining fields partially covers the area of Krumovgrad municipality, but they are all falling within the boundaries of Rodopi - Iztochni BG0001032 Habitats Directive site.

Therefore, the recommendations in the AA report for the *Ada Tepe* mine are obviously disregarded both by the investor and the "competent" state authorities.

Additionally, two other companies are holding exploration permits for two other big mining fields named *Kalabak* /191sq.km/ and *Blagun* /64sq.km/ in the area of Krumovgrad municipality.

**Moreover**, during the preparation of this report, another tender invitation appeared on the Ministry of Energy internet site, concerning metal search and exploration in another new big mining field called *Krumovitsa* /181sq.km/, which falls entirely within the boundaries of Krumovgrad municipality, but the tender procedure is initiated by an unknown for the moment investor, meaning it may not be DPM. However, for an unknown reason the borders of this particular field fully cover the borders of the other field - *Iran tepe*, which is owned by *Balkan Mineral Mining*, therefore DPM may still have something to do with it. The boundaries of all future mining plans are displayed on the following map, where the Krumovgrad municipality borders are drawn with thick black line:



Exploration fields *Kalabak* and *Blagun* not belonging to DPM or its subsidiary - Balkan Mineral Mining, are colored in magenta.

This map shows only the mining exploration fields in the municipality of Krumovgrad, but there are many other permits for exploration within the same Habitats Directive Site, which is painted in green on the map.

To be enlarged and studied in detail the map can be downloaded from here:  
[https://dams.reki.bg/uploads/Docs/Files/ADA TEPE KRU MAP 2.jpg](https://dams.reki.bg/uploads/Docs/Files/ADA_TEPE_KRU_MAP_2.jpg)

It should be noted that some of the big mining fields are surrounding or joining some of the other fields, sharing the same borders. For example, *Krumovitsa* surrounds *Khan Krum*, *Lada* and *Yarilo*, and shares the same border with *Elhovo*, *Kalabak* and *Blagun*. This is done for purpose, because the area of exploration in a single permit should not exceed 200 square kilometers acc. to the Mineral Resources Act.

It should also be recalled that in line with the recommendations specified in the EIA/AA reports, the approved Alternative No1 of the *Ada Tepe* mining section is with reduced operational area - only 85 hectares, instead of 160 hectares for Alternative No2. The reason was to avoid significant adverse impact *at Site's level*.

And now two new fields with actual permits for exploration - *Lada* and *Yarilo* - belonging to the same investor - are adjoined to *Khan Krum*, forming additional 3.1 square kilometers.

It also seems that at least 70% of the total area of the municipality of Krumovgrad will be subject to further exploration for gold and other metals. Such geological data is available in the old National Geological Fund from Socialist times and usually the mining companies are pretty well aware of what they are searching for. When they find it officially, the subsequent procedure is automatic and unstoppable until a

concession contract is signed, unless if during the EIA/AA procedure the Investment Plan is rejected, which never happens. The reasons are described in the next section.

6) Last, but not least, the European Commission has sent a final warning to Bulgaria over systemic failures in its implementation of EU nature legislation on December 3rd 2020.

Here is the source:

[https://ec.europa.eu/commission/presscorner/detail/en/inf\\_20\\_2142](https://ec.europa.eu/commission/presscorner/detail/en/inf_20_2142)

And here is a short citation from Chapter 1. Environment and fisheries, section Reasoned opinions:

...

*In Bulgaria, cumulative impacts of existing and authorised plans and projects in Natura 2000 areas have systematically been neglected when assessing the impacts of new plans and projects. Therefore, many developments representing a major threat to conservation objectives have been authorised. The Commission initiated an infringement procedure and sent an additional letter of formal notice to Bulgaria in July 2018. However, new complaints and a check of authorisations granted in Natura 2000 sites in 2019-2020 showed that this structural problem persists and plans and projects continue to be authorised based on inadequate assessments, or even in the absence of appropriate assessments. Bulgaria now has two months to remedy the situation, otherwise the Commission may refer the case to the Court of Justice of the EU.*

The AA report for Ada tepe mining section is an exception. Any future mining activities in the area of Krumovgrad within the Natura 2000 Site concerned will be in direct contradiction with the AA expert conclusions if the future plans of the investor are developed any further.

### III. Compliance of the Ada Tepe mining area parameters with the Bulgarian Water Act and the underpinning national documents.

At first, here is a brief overview of the legal provisions.  
According to the Bulgarian Water Act:

#### Additional Provisions, WA

7. (amended, SG No. 65/2006, in force since 11.08.2006) "**water abstraction**" shall cover all activities related to the abstraction of water from water bodies;

.....

34. (New, SG No. 65/2006, in force since 11.08.2006) "**water object**" is a permanent or temporary concentration of waters with relevant borders, volume and water regime in the earth's subsoil and in natural or artificially created forms of the terrain together with the lands belonging to them;

**Note:** This means that each gully, in which permanent or temporary water courses are formed, is a water object by definition. There is a decision of the Supreme Administrative Court on the matter in a lawsuit against a quarry, in which we were engaged as consultants of the party that won the case.

#### **Article 44, paragraph (1), WA**

*Art. 44. (1) (Amended, SG No. 81/2000, amended, SG No. 65/2006, effective 11.08.2006) A permit for water abstraction shall be required in all cases, except for:*

*1. the cases under art. 43, para. 2;*

.....  
**Note** - article 43, para.2 is about water abstraction up to 10m<sup>3</sup> per day, by individuals for personal needs in their own property inside urban areas, hence it is not applicable to enterprises of any kind.

#### **Article 44, paragraph (2), WA**

*Art. 44. (2) (Amended, SG No. 65/2006, in force since 11.08.2006) Water abstraction shall include the abstraction of water from water objects and / or water diversion from them, as well as the use of water energy.*

#### **Article 46, paragraph (1), WA**

*Art. 46. (Amended, SG No. 65/2006, in force since 11.08.2006) (1) A permit for Usage of a water object shall be issued for:*

*1. (amended, SG No. 61/2010) construction of new, reconstruction or modernization of existing systems and facilities for:*

*(a) runoff regulation;*

.....  
*g) water abstraction from surface or groundwater;*

.....  
*3. (amended, SG No. 61/2010) discharge of waste water into surface water for:*

*a) the design of sites, incl. sewerage systems of settlements, settlement and resort formations;*

#### **Article 50, WA**

*Art. 50. (1) (Amended, SG No. 65/2006, in force since 11.08.2006) A permit shall be issued for water Abstraction and for the Usage of a water object.*

Now, here we have to get back to the letter of RIEW *Haskovo* - see the link on page No6 of this report, please. This letter proves three very important facts:

1. Two sumps were built for the operation of *Ada Tepe* in the gullies tributary to Krumovitsa River, together with a channel to collect "non contact" surface rainwater and dump part of it occasionally into the receiving water body - Krumovitsa River below the mining area.
2. Part of the surface rainwater is collected and diverted from the Krumovitsa River back to be reused for industrial needs.
3. Another part of the surface rainwater is collected and occasionally dumped directly into the river without any treatment whatsoever, regardless of the fact that mining areas are potential big emitters of dust, possibly containing toxic substances and/or metals. For this particular reason dust has been paid special attention to in the *Ada Tepe* EIA report.

**Fact No.1** means that new facilities /the sumps/ were built in existing surface water objects /the gullies/ where water courses are temporarily formed.

Then a Water Permit for the Usage of the gullies is required.

**Fact No.2** means that part of the surface rainwater is diverted and reused for industrial needs, but then it doesn't reach the surface water body - Krumovitsa River. Then a Water Permit for Abstraction from the surface water object is required.

**Fact No.3** means that part of the surface rainwater is dumped occasionally into the Krumovitsa River below the mine without any treatment at all. This water is coming from an industrial area, potentially loaded with mining dust that may contain unknown quantity of pollutants. To discharge this type of waste water /whether contact or non contact/ into a river, it should meet appropriate emissions' rates and limits, which should be specified by the competent EARBD in the Water Permit, in order to follow the legal provisions. Consequently EARBD should be able to check whether the limits are exceeded during the operational phase of the project. Then a Water Permit for the Usage of the receiving water body - Krumovitsa River right below the mine, is required.

Now, all existing Water Permits /actual, expired, extended and/or modified/ are listed either in the EARBD Register /when EARBD is the competent state authority/, or in the MOEW Register /when EARBD is not competent on the matter/.

After a thorough search in both MOEW and EARBD registers and a letter of the EBRD received under the Public Information Access Act, only two Water permits for the Ada Tepe mine were found:

- Water Permit for abstraction of fresh water from the groundwater source above the mine /actual for the time being/.
- Water Permit for the use of Krumovitsa River as a receiving water body for properly treated waste water. The point of discharge is located below the city of Krumovgrad, several kilometers away from the mining area. The deadline of this particular permit has expired in August 2019 /at the start of the operational phase of the mine/ and was not officially extended or modified so far. The reason is that such waste water is still collected in the sumps and in the reservoir, after a year and four months from the start of the mining activity. Of course, another reason is that surface rainwater is still dumped directly into the river at the south sump below the mine, instead of being collected, treated, precipitated and reused in line with the requirements for prudent, effective and rational utilisation of the natural resources, TFEU.

#### **IV. Compliance of Ada Tepe mine together with the future mining development plans in the area with the SEA Directive and the Habitats Directive of the EU.**

In brief - if we get back to the map of all existing and future mining projects in the area of Krumovgrad municipality, it becomes clear that all these plans together constitute a general mining development plan, programme, or even strategy for the future development of the municipality itself. There will be no room left for any other undertakings - industrial, rural, tourism etc., because at any moment in the future it will be possible that a mining company may come around and start digging.

Therefore, full compliance with the relevant EU directives is of crucial importance for the future of these mining plans, which means that relevant procedures in line with the EU Directives must be carried out for the mining Strategy.



On the other hand, we were not able to find a General Spatial Plan on the internet site of the municipality. Currently such Plan does not exist. Traces of SEA and AA for the same Plan are not uploaded on the SEA internet register of the competent RIEW Haskovo:

[https://haskovo.riosv.com/main.php?module=documents&object=category&action=list&doc\\_cat\\_id=8](https://haskovo.riosv.com/main.php?module=documents&object=category&action=list&doc_cat_id=8)

It is not a surprise, because any positive conclusions in any possible SEA and AA reports will contradict the conclusions in the AA report for the *Ada Tepe* mine in the light of the expected cumulative effects. Contract for the preparation of the General Spatial Plan, together with a SEA and AA for the Plan, was signed in March 2018 but as of today the Plan and its assessments are not completed for obvious reasons, while the deadlines have expired long time ago.

## **V. Compliance of Ada Tepe mine together with the future mining development plans in the area with the ESPOO Convention.**

*Krumovitsa* River is tributary to the transboundary *Arda* River, which flows to Greece. In line with the Espoo Convention, EIA in a transboundary context was conducted for the *Ada Tepe* mine.

The affected Greek party agreed on the project's implementation only within the parameters of Alternative 1 with the reduced mining area /85 hectares/.

The letter of the affected State - Greece, to the State of origin - Bulgaria can be found here:

<https://dams.reki.bg/uploads/Docs/Files/ADA TEPE ESPOO LETTER GREECE.pdf>

It is unclear for the moment whether the Greek party will be happy with the news for all the future mining developments along the *Krumovitsa* River, on one hand.

On the other - the following expectations of the Greek party are shared on page 3 of the letter:

*"All appropriate measures will also be taken (i.e. forming gradients, maintenance of drains to ensure flowing capacity etc) to avoid transfer of any kind of sediments from the project's facilities to the Krumovitsa River"...*

## **VI. Summary**

- Erosional flows during the construction phase have caused negative impact on the status of *Krumovitsa* River, due to the covering of the riverbed with sludge below the mining area.
- The presence of sludge in the riverbed and its metal contents was not registered and discussed during the preparation of the *Ada Tepe* EIA/AA reports. Having in mind the good quality of these reports, such omission is unusual if the sludge was present at the time.
- Currently the sludge contains Arsenic and other metals exceeding the EQS limits for sediments. This is a great matter of concern due to the direct contact between the surface and groundwater bodies in the area, because the drinking

groundwater sources of the city of Krumovgrad are located in the terraces of the river close to the town downstream the mine.

- Such concern is not relevant to the fresh water source of the Ada Tepe mine itself, because its groundwater source is located upstream of the mine...
- Concerning the Monitoring Plan of the investor, monitoring of river sediments and testing tissue samples from the fish fauna during the construction and the operational phase was not taken into consideration at all, thus eventual pollution during every rainfall may remain unregistered.
- The affected Greek party /within the meaning of the Espoo Convention/ agreed on the project's implementation only if *transfer of any kind of sediments from the project's facilities to the Krumovitsa River* is avoided.
- During rainfall "non contact" surface waters from the industrial mining area are collected and some part is dumped directly into the river, instead of being reused. Eventual contents of dust or heavy metals and other pollutants in these waters are unknown for the time being. This is happening in breach of a basic European principle written down in article 191 TFEU, namely that:  
*...policy on the environment should be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay...*
- Another part of "non contact" surface waters from the industrial mining area are collected and reused for industrial purposes, hence they are diverted from- and never reach the Krumovitsa River.
- Surface rainwater management of the *Ada Tepe* mining area has weaknesses and inconsistency with the conditions and recommendations specified in the EIA and AA reports.
- In the Water Permit registers of MOEW and EARBD there are no traces of the necessary Water Permits for Abstraction and Usage of the water objects in the mining area. The only existing and actual for the time being Water Permit discovered in the official registers is for fresh water abstraction from the groundwater source above the mine.
- The investor has applied for an extension of the Water Permit /expired in August 2019/ for the Usage of Krumovitsa River as a receiving water body for treated waste waters coming from the mine. The point of discharge is located below the city of Krumovgrad, several kilometers away from the mining area. The application asks for waste water quantities two times bigger than the quantities assessed in the EIA report.
- Presence of fish and otter along the whole studied section of Krumovitsa River is a positive sign, indicating that the river ecosystem is not heavily affected yet.

- The plans for exploration and potential future mining developments in the area of Krumovgrad are in large contradiction with the conclusions in the AA report for the *Ada Tepe* gold mine.
- SEA and AA were not conducted for the strategic mining development plan of Krumovgrad municipality. Implementation of this strategic mining plan is undergoing in the absence of a General Spatial Plan for the municipality of Krumovgrad.
- For the same strategic mining plan an EIA in line with the Espoo Convention has not started and currently the Greek party has no idea of what is going to happen.
- It appears that the preparation of the General Spatial Plan of the Krumovgrad municipality, together with its EIA and AA reports, has been abandoned.

## VII. Recommendations

1. Concerning surface waters, whether contact or non contact, *Ada Tepe* surface rainwater management and monitoring needs to be improved. Surface rainwater should be collected and treated in order to prevent pollution and to use the fresh water source in a much more prudent and effective way, aiming to reduce the pressure on the groundwater body.
2. Future waste water quantities from all types of sources should be brought into conformity with the quantities assessed in the EIA report.
3. Measures to prevent further accumulation of sludge, due to direct discharge of non contact surface waters coming from the mining area and flowing into the Krumovitsa River right below the mine without proper treatment, must be undertaken in due course. Apart from the national legal requirements, problems with the Greek party might also be expected if they get informed that the problem persists.
4. The accumulated bottom sludge should be thoroughly sampled and analysed for pollutants and the source of pollution must be identified. Depending on the results, appropriate measures should be recommended, planned and undertaken very soon. Otherwise some of the drinking groundwater sources in the area may be set at risk.
5. Tissue samples taken from the fish below the mining area should be tested for presence of metals. This is highly recommendable to be included in the Monitoring Plan of the investor, together with a monitoring of the presence, the source and the eventual further contamination of the sludge.
6. Groundwater monitoring of the Krumovgrad drinking water sources has to be conducted with extreme caution on a regular basis.
7. Apart from *Ada Tepe*, other investment plans for new mining activities in the area of Krumovgrad municipality, falling within the boundaries or in the close vicinity of Natura 2000 Habitats Directive site *Rodopi - Iztochni* BG0001032, must not be allowed and developed. In case this is not followed, it will undermine the very meaning of the EIA/AA procedures in Bulgaria, breaching not only the national environmental legislation, but the Espoo Convention and the relevant EU Directives as well - the Water Framework Directive, the Habitats Directive, the SEA and EIA Directives etc.

Finally, having in mind that the Bulgarian National Development Strategy for the Mining Industry was similarly not subjected to a SEA and AA in breach of the relevant EU Directives, and also taking into account the scale of the future investment plans of Dundee Precious Metals and the other mining investors in the area concerned, it is obvious that the Habitats Directive site *Rodopi - Iztochni BG0001032* will become subject to a significant adverse impact.

Therefore, this report will be conveyed to DG ENV of the European Commission before it gets too late. Actually, some of the grounds on which the infringement procedure of the European Commission is based, namely the pollution caused by mining enterprises and the uncontrolled mining development in the country without a SEA and AA, can be found in the following Complaint:

[https://dams.reki.bg/uploads/Docs/Files/EU\\_COMPLAINT POLUTION DRAFT4.pdf](https://dams.reki.bg/uploads/Docs/Files/EU_COMPLAINT_POLUTION_DRAFT4.pdf)

All the recommendations above are based entirely on the principles laid down in article 191 TFEU. We hope, therefore, that at least some of the recommendations proposed herein will be taken into consideration and will be followed.

**In the very end** it should also be noted that a very interesting document appeared on Internet the day when this report was finalized - another DPM document called Risks and Opportunities Related to Climate Change:

[https://s21.q4cdn.com/589145389/files/doc\\_downloads/2021/01/TCFD-Report\\_Preview\\_210108.pdf?fbclid=IwAR3vlihtvAQqTvfqo9faHDCna0sZbQpvY1MYp7QUbugSB4fM8NTUTKAHuIY](https://s21.q4cdn.com/589145389/files/doc_downloads/2021/01/TCFD-Report_Preview_210108.pdf?fbclid=IwAR3vlihtvAQqTvfqo9faHDCna0sZbQpvY1MYp7QUbugSB4fM8NTUTKAHuIY)

Most interesting is **page 20**, where water management risks the *Ada tepe* mine is facing are discussed. For example - the potential delays due to possible water shortages, which can be avoided if the recommendations above are followed, together with the dust issues, are addressed in the table on this page. Assuming that the authors mean purified or treated water when they talk about "*cleaned water*", once again any possible direct discharge of "non contact" untreated rainwater /i.e. not purified or *cleaned*/ into the Krumovitsa River below the south sump is not mentioned at all...

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