"Balkanka" Association, Sofia, Bulgaria
"Nature has all the time in the world, we do not".

STUDY

Case: The Belmeken-Sestrimo Cascade & Chaira PSHPP -
- with, or without the future Yadenitsa dam

Subject: Environmental impact, economical and social effects.

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Purpose of the case study:

To inform decision-makers at the EC and EBRD about the Belmeken-Yadenica actual environmental and social problems.

To demonstrate to Bulgarian decision-makers and the National Electric Company /**NEK**/, that the problems cannot be hidden.

To mobilize support among the Bulgarian and international political and civil society actors.

Target Audience:

Bulgarian public

Donors/Investors: the European Commission /The Innovation and networks executive agency/, MEPs, EBRD, EIB.

Decision-makers & interested stakeholders in Bulgaria: the Bulgarian government, NEK, Parliament (MPs, relevant committees), political parties, banks, NGOs.

ABSTRACT

Implementing the EU Directives /the third liberalization package in particular/, in the last decade Bulgaria is experiencing a boom in renewable energy sources (RES). Priority development of electricity generation from RES has brought the country just behind the leaders in Europe, reaching the required 16% share of renewable energy production way before the deadline set for Bulgaria. In a country which is and has always been a regional leader in electricity production including hydropower, exceeding its own needs by far, combined with an inadequate environmental protection and nonexistent state control, the damage caused to environment and river ecosystems is already irreparable in many regions of the country.

At the beginning it should be noted that the Chaira PSHPP, together with the new Yadenitsa dam, must be studied together with the Belmeken-Sestrimo cascade, because all hydropower plants are using the same water units - derivation channels and the Belmeken dam, catching the water of the same rivers in the Rila Mountain.

The initial idea for the Chaira PSHPP construction was fair enough - to play a balancing role to the conventional power plants, especially to the Kozloduy nuclear power plant and/or to stay as a reserve. In a socialist country with its enormous electricity consumption, such an additional balancing facility would have been quite useful to generate energy during the peak consumption hours of the day and to waste the excessive energy, produced by the unstoppable power plants in the night, pumping water from a lower to the upper reservoir.

However, socialism died together with the big industrial facilities, before the Chaira PSHPP was finished and set into operation, leaving the country with an excess of generating facilities and a lack of big consumers. Thus Bulgaria became a big export player on the regional electrical energy market, with the Chaira PSHPP still to play a very important role in the process. That is why the construction works, started in 1980, continued till August 1999, when the last No3 and No4 hydro units were set into operation

Then the wave of renewable energy sources development came, not only in Bulgaria, where it led to an additional excess of energy production, but in most of the neighboring countries, thus reducing their needs.

In the course of investigating the case from the environmental point of view, we observed too many dry rivers in Rila National Park, the waters of which are collected and delivered to the existing Belmeken dam, which is the main upper reservoir for both the Belmeken-Sestrimo cascade and the Chaira PSHPP. This happened in both the

midsummer and late autumn times of 2015 and 2016, raising substantial concern for the environmental protection in an emerald site, Natura 2000 Habitats and Birds directive site Rila BG 0000495.

Moreover - to our biggest surprise, we discovered that the much more important role of the Chaira PSHPP in the future is expected to be - not to generate electrical energy in turbine mode, but to waste the excessive energy production from RES in pumping mode This raised the question - why is the Chaira PSHPP pumping capacity then so important, while the majority of RES operating plants can simply be stopped, or, at least - why should we keep on building new RES plants? Initially the expected pumping role of the Chaira PSHPP was too hard to believe, not to mention the main problem - who is paying for the wasted energy and for the maintenance of the plant - the people of the poorest country in EU? Or - who will pay for the new Yadenitsa dam in the end when it's done? Shall we build a new dam only to increase the benefits of "pumping in vane" to waste energy? Will we spend a lot of public finances for a new 109 m. high dam wall, aiming to waste, rather than to produce energy?

Therefore the following document studies the present and future role of the Chaira PSHPP and the purpose of the new Yadenitsa dam, not only in the light of their environmental impact, but in regards to the economical and social effects.

1. Short description of the Belmeken-Sestrimo Cascade and the Chaira PSHPP.

1.1. The Belmeken-Sestrimo Cascade operates with three power plants - the Belmeken PSHPP /375MW in generating, 104MW in pumping mode/, the Sestrimo HPP /240 MW/ and the Momina Klisura HPP /120 MW/. The cascade was set into operation officially on November 1st 1974. The main upper reservoir is the Belmeken dam with its 141.16 million cubic meters volume. The small Stankovi Baraki dam is a daily equalizer with 0.375 million cubic meters volume, located right by the Belmeken PSHPP. There is another small reservoir above the Momina Klisura HPP, which is not important for this study.

At present all three HPP are not working at full power the whole time. Just one example - acc. to the Sustainable Energy Evolution Agency /SEEA/ register for 2015 - the Belmeken PSHPP has worked in generating mode between 3% /in November/ up to 28% /in July/, with an average 11.3% of its full generating capacity, calculated on an annual basis. The possible explanations are: the water collected in the Belmeken dam didn't suffice, or - additional energy wasn't needed, or both.
Here is the proof - a link to the SEEA register for 2015:
http://www.seea.government.bg/bg/registers/register-garancii

1.2. The Caira PSHPP was set into operation at full capacity in 1999. With its 864 MW in turbine mode and 772 MW in pumping mode, it is the most powerful PSHPP in Southeast Europe - the pride of Bulgarian hydropower. The water comes from the upper Belmeken dam again, to be stored in the lower Chaira dam with its 4.2 million m3 volume, which is supposed to work as a daily equalizer. The volume of the lower dam enables the Chaira PSHPP to work **8.5** hours in turbine mode and **10.7** hours in pumping mode at present. The main purpose of Chaira PSHPP was already described - to generate electricity during the peak consumption hours of the day and to waste the excessive energy, produced by the unstoppable power plants in the night.

The following link contains a very interesting strategic document - the Plan for development of the electricity transmission network of Bulgaria for the period 2015-2024:
http://www.tso.bg/uploads/file/bg/10_Year_Net_Dev_Plan_2015-2024_confirm.pdf

Here are a few interesting citations extracted from pages 15-17:

On page15: *The "Kozloduy" NPP, unlike the plants taking part in the frequency control and as back-up capacity, produces low cost energy, but is not able to provide secondary balance due to technological reasons. Thus creating certain difficulties in covering the balance of the Electrical Energy System /EES/ for periods of minimum load in the presence of forced production from hydropower and wind power plants. These difficulties were encountered in the spring of the last three years, when the operating power of NPP "Kozloduy" had to be restrained due to the high water runoff in the complex reservoirs and to the forced operation of hydropower plants during the spring high water. With the fast growth of RES and the lack of industrial load in the country, the need of limiting the operating power of NPP "Kozloduy" during some periods of the year will expand.*

On page16: *If the designed wind and photovoltaic power plants are uncontrollable, with a total installed capacity of over 2500 MW, the balancing capability (the flexibility) of EES will be reduced. Additional measures should be taken to guarantee adequate and flexible development of production capacities.*
The possible solutions are:

- *increasing the balancing capacity of "Chaira"PSHPP through completion of the "Yadenitsa" dam*
- *Operation of the "Gorna Arda" cascade units in a pumped storage mode;*

……..

On page17: *By increasing the share of RES in the system, the reserve for secondary regulation "downwards" would be insufficient to secure the necessary EES level of control, according to the Bulgarian regulations and to the adopted international requirements.*
/Note: The named regulation "downwards" is obviously an euphemism for wasting energy/.

In summary - the above citations mean that for the sake of RES development, Bulgaria needs to reduce the cheap production from Kozloduy NPP and to increase the capacity for wasting energy.

We have unofficial information that the Chaira PSHPP is working in pumping mode, not only during the night, but even in the noon and early afternoon hours of the day. We have no access to the Chaira PSHPP operational reports, but here is some official proof - the following article proves that on May 13th 2013 at 2, 50 pm local time the Chaira PSHPP was pumping: **https://www.24chasa.bg/Article/1981872**

There is a sad joke cited in the above article: "*Switch the stove on, save the energy system*" says energy expert Mr Ivan Hinovski to the publiic, referring to the huge excess of produced energy, which should be wasted somehow. It could be really funny, if the people are not paying for the excessive energy and to such experts to share inappropriate jokes, while the same have brought the country into such a sad situation.

1.3. Economical and social effects

The effects are quite obvious - too many generating facilities, the majority of which cannot be stopped for various reasons /mainly due to technological inability or inappropriate corrupt contracts/; low consumption; fast growth of RES in the country and a regional market with declining needs due to the same fast growth of RES in the neighboring states. It should also be noted that an energy efficiency programme is taking place in Bulgaria at present, to reduce the energy losses in the existing buildings, which will hopefully lead to an additional reduction of energy consumption. That is the goal of the programme, announced by the government.

There are some questions to ask then - why a country in such a situation has to continue building new facilities, or to increase the capacity of the existing ones, especially

when the cheap energy production from Kozloduy NPP has to be reduced, even if the same cheap energy is exported by connected to politics people and companies? At the same time the expensive production from RES is distributed through the local market, with the expensive excess being used to move a large amount of water up and downhill the Rila Mountain, while the local people are paying for that nonsense?

Actually, the only power plants that can easily and quickly be stopped are those operating with RES. Why don't we stop them temporarily, instead of paying for the energy they produce and for the maintenance of our pumping "pride" Chaira PSHPP - only to follow some EU directive? Something is very wrong here.

Another important question arises from the information about the Belmeken-Sestrimo cascade, working at a very small percentage of its full capacity - do we need a bunch of new small RES, if the existing big ones are not loaded within more than 15%?

It is true that the 5th and 6th blocks of Kozloduy NPP /2000MW combined capacity/ operation deadlines expire in 2017 and 2019, but the management is working to extend the deadlines with 15-20 years. At the same time we keep hearing in Bulgaria about the future 7th block of Kozloduy NPP, the Belene NPP, the Gorna Arda cascade and investors keep coming with new and new investment plans for all types of RES /new HPP in particular/, which are always accepted by the state. Yes, the Belene project was blocked by a decision of the Parliament - someone may argue. But it was initially approved by the Parliament; then it was blocked by the Parliament /with some billions public money spent for the exercise/ and can be approved again in two days if the political wind blows in the right direction. Actually it has blown already, because we have to pay now for the Belene NPP two nuclear reactors some 700 million €, with not a single idea what do we need the damn things for

We should also have in mind that there are overall plans for 7/seven/ GW of wind generators only in Northeastern Bulgaria, which will not be completed - every one says, but who knows. And there are some 700 future HPP that have water permits already issued by the River Basin Directorates.

So it turns out that the Chaira PSHPP is, and will continue to be, the biggest and most expensive "*stove*" in Southeastern Europe's history, the "pumping in vane" role of which will become more and more important. But will the new Yadenitsa dam be useful for the purpose of increasing the benefits of the Chaira pumping capability? We will see the answer in the following sections.

1.4 The existing water supply system.

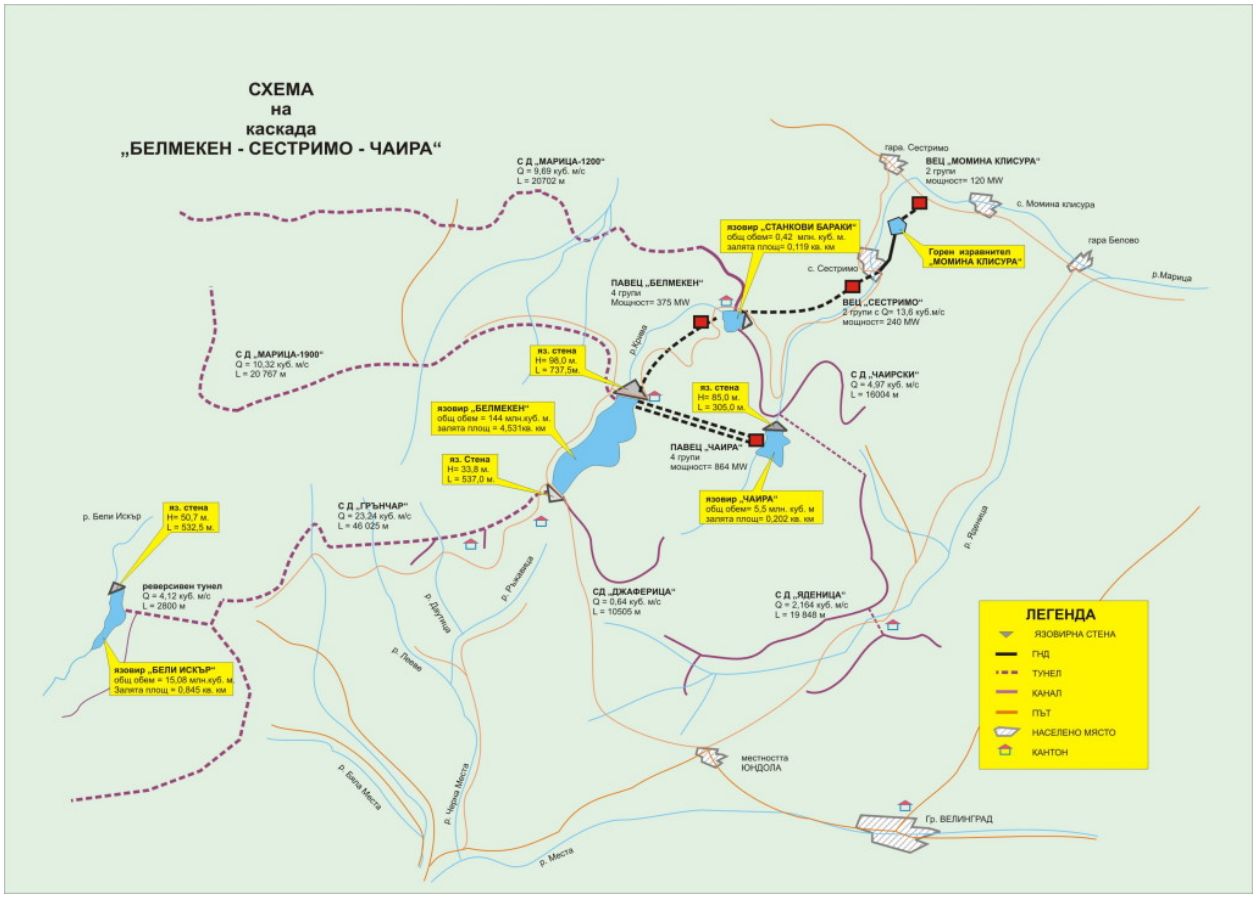
1.4.1. The main upper reservoir is the Belmeken dam /141.16 million cubic meters volume/. Three derivation channels collect and transfer to the dam the water of all rivers and streams in the RILA National Park. These are - Granchar, Maritsa 1900 and Jaferitsa derivation channels. Here is a picture of the dam's artificial "beauty":

Source - http://velingrad-hotels.com/page/%D1%8F%D0%B7%D0%BE%D0%B2%D0%B8%D1%80-%D0%B1%D0%B5%D0%BB%D0%BC%D0%B5%D0%BA%D0%B5%D0%BD

The small Stankovi Baraki dam /0.375 million m3 volume/ is a daily equalizer, located right by the Belmeken PSHPP. Part of the water is coming from the Maritsa 1200, the Chairski and the Yadenitsa derivation channels, but the main water quantity for the Belmeken PSHPP still comes from the Belmeken dam.

The Chaira dam /4.2 million m3 volume/ is located right by the Chaira PSHPP. It catches the water of the very small Chairska River, but the main water quantity comes from the Belmeken dam again.

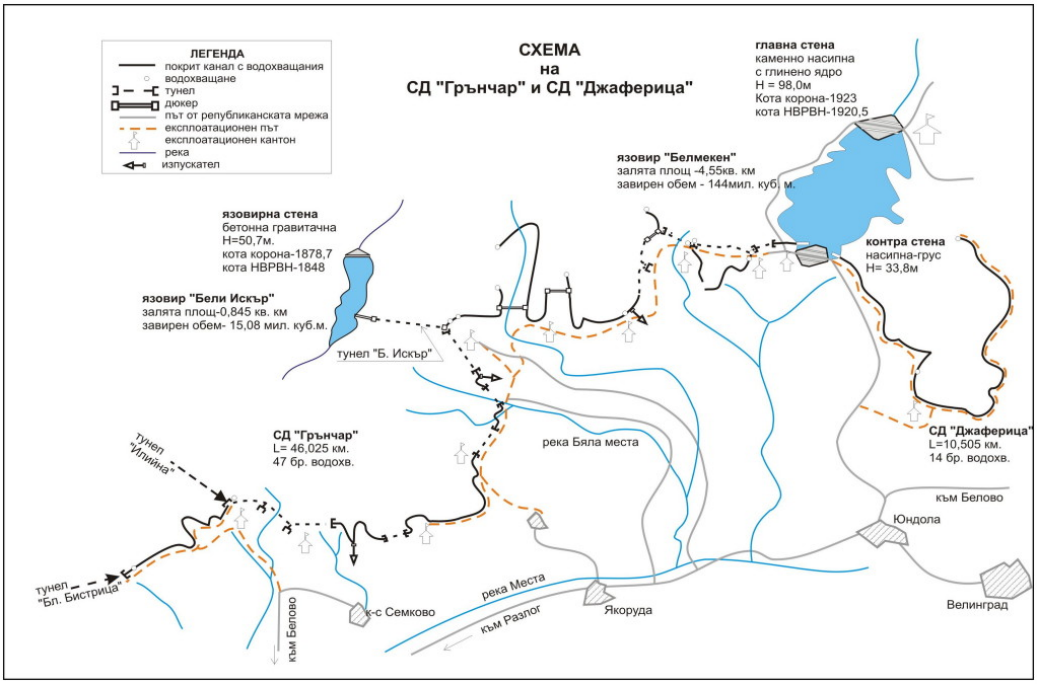
The following map shows the overall scheme of all water units - dams and derivation channels:



The majority of water catchments for all channels are taking the water from the Mountain Rivers and streams with an average multiannual /long term/ water flow - less than 100 l/sec at the point of the water abstraction. This fact is important in regards to the existing water permits and their future extension.

We have to pay special attention to the Granchar and Jaferitsa derivation channels, because they are collecting waters that would otherwise go to the Struma and Mesta river basins, transferring that water to the Maritsa river basin through the Belmeken dam, to be used by the Belmeken-Sestrimo cascade.

Here is the scheme of these two channels:



The Granchar channel is taking water even from the rivers Iliyna and Blagoevgradska Bistritsa, which are tributary to the Struma River. The Granchar channel has 47 catchments and the Jaferitsa channel - 14 catchments. This simply means that there isn't a single drop of water in the entire Rila National Park that is not being caught. Some rivers like Maritsa River are even caught at two altitude levels - 1900 & 1200 meters above sea level.

Note: The sources of all maps displayed above or bellow are:
http://www.dams.nek.bg/Default.aspx?item=381eb6bd-f2a8-4dfd-b4ba-b892c572a350
http://www.dams.nek.bg/Default.aspx?item=685f79b7-da3e-43ef-b2c7-a8025eb16e86
http://www.nek.bg/images/content/tenders/2015/download.php?f=01-06-01.pdf

1.4.2. Present environmental Impacts:

We have long term observations on some rivers, to state that for many years the Belmeken-Sestrimo-Chaira hydropower group has caused irreparable damage to the river ecosystems in the entire Rila Mountain in general, and in the Rila National Park in particular. Just one example - each and every year we have seen the Maritsa River completely dry at the confluence with the Ibar River in the village of Raduil during the dry summer months. We didn't know that the water of Maritsa is caught at two levels already, therefore we were wondering - why is the river called Maritsa, not Ibar, bellow the Raduil village.

During our inspections in the summer and late autumn of 2015 and in the summer of 2016 as well, the situation in Rila National Park turned out to be much worse in comparison even to the normal environmentally unprotected part of the country. In a "protected" territory, there was no level of water protection whatsoever, as far as rivers and river ecosystems are concerned. Totally dry riverbeds bellow the numerous water catchments, nonexistent or improper fish passes, etc.

And the lack of water in the rivers affects not only the aquatic species, but also the protected species of vertebrate animals, for example - the otter (Lutra lutra) and many others. It also affects all kind of bird species, due to the reduction of appropriate nesting spots along the rivers, and mostly due to the decrease in their nutrition base – aquatic invertebrates and fish, also harmed or destroyed by insufficient ecological river flow. The drying-up of small rivers also deprives all kind of birds, mammals and other animals from drinking water, vital for their survival and wellbeing in the same Rila NP, which is an emerald site - Natura 2000 Habitats and Birds directive site Rila BG 0000495.

Proof
http://dams.reki.bg/0485-dam/2015-07-27 - Ropalitsa River, Granchar channel in July 2015:

http://dams.reki.bg/0485-dam/2015-11-21 - other water catchments for the Granchar channel at high mountain streams in November 2015:

http://dams.reki.bg/0485-dam/2016-06-18 - the results of our inspection in 2016 near Belmeken

http://dams.reki.bg/0358-dam/2016-09-17 - the results of our inspection in 2016 of the Blagoevgradsks Bistritsa river

http://dams.reki.bg/0485-dam/2016-06-24 - the results of our inspection in 2016 of the Iliyna River

The last two pictures show the Iliyna River at 2060 meters altitude level.

It should also be recalled that there are small HPP along each of these rivers at a lower altitude, operational or future - more than one at most of them, 14 /fourteen/ at Blagoevgradska Bistritsa.

Referring to similar facts, including the above, Balkanka Association-Sofia has already lodged three Complaints with the DG Environment of the European Commission. WWF Danube Carpathian Programme Bulgaria has also lodged a complaint based upon similar issues. The contents and the facts enclosed in those documents prove beyond a doubt that there is a Total Anarchy going on in Bulgaria, as far as rivers and river ecosystems protection is concerned.

A possible effect of those Complaints could be that the water policy in the country might be turned upside down in the near future, with the Bulgarian environmental protection legal acts and the relevant EU directives being followed as a result. When that happens, all the water catchments and the water permits for the water units of the Belmeken-Sestrimo-Chaira hydropower group will be reviewed - at the time of their first extension, if not immediately. For example - the Bulgarian Water Act prohibits water abstraction for hydropower production from rivers with multiannual /long term/ water flow less than 100 l/sec. Another mandatory rule is to discharge a minimum water quantity bellow the water catchments - essential for the ecosystem survival, a rule which is not followed today, not to mention **"*the aim of achieving good surface water status*"** of the WFD, etc. Meaning that one happy day, the waters fully caught in Rila NP, which do not suffice at present anyway, will be reduced additionally to comply with the relevant environmental standards.

1.4.3. Additional information

A. We have to point out once again that some waters are taken from Struma and Mesta River Basins, to be transferred to the Maritsa River Basin. The combined full capacity of the Granchar and the Jaferitsa derivation channels is 24m3/sec.

There is a theory of the National Electric Company /NEC/ and some hydro technicians, that there are too many waters running free in Bulgaria, that go to our neighbors - Turkey and Greece, without being properly used.

The Belmeken-Sestrimo cascade was built in the Socialist times, when we were enemies with these neighboring states. Taking waters from the Struma and Mesta River basins which would go to our neighbor - Greece, transferring them through the Belmeken-Sestrimo cascade and sending them to another neighbor of ours - Turkey in the Maritsa river basin. So the Greeks we are taking the water from, sending it to the Turks even during high water. Some very good neighbors we are, aren't we?

We are also sending the additional water from Struma and Mesta Rivers to our own cities in the Maritsa River basin - Sadovo, Harmanli and Svilengrad, which often get flooded during heavy rainfall. We know that the Belmeken-Sestrimo water units are not properly managed during high water - they keep on taking the water that would go to Struma and Mesta rivers, and there is not a single word about this issue in the new Flood Risk Assessment for the East Aegean River Basin, which includes the Maritsa River.

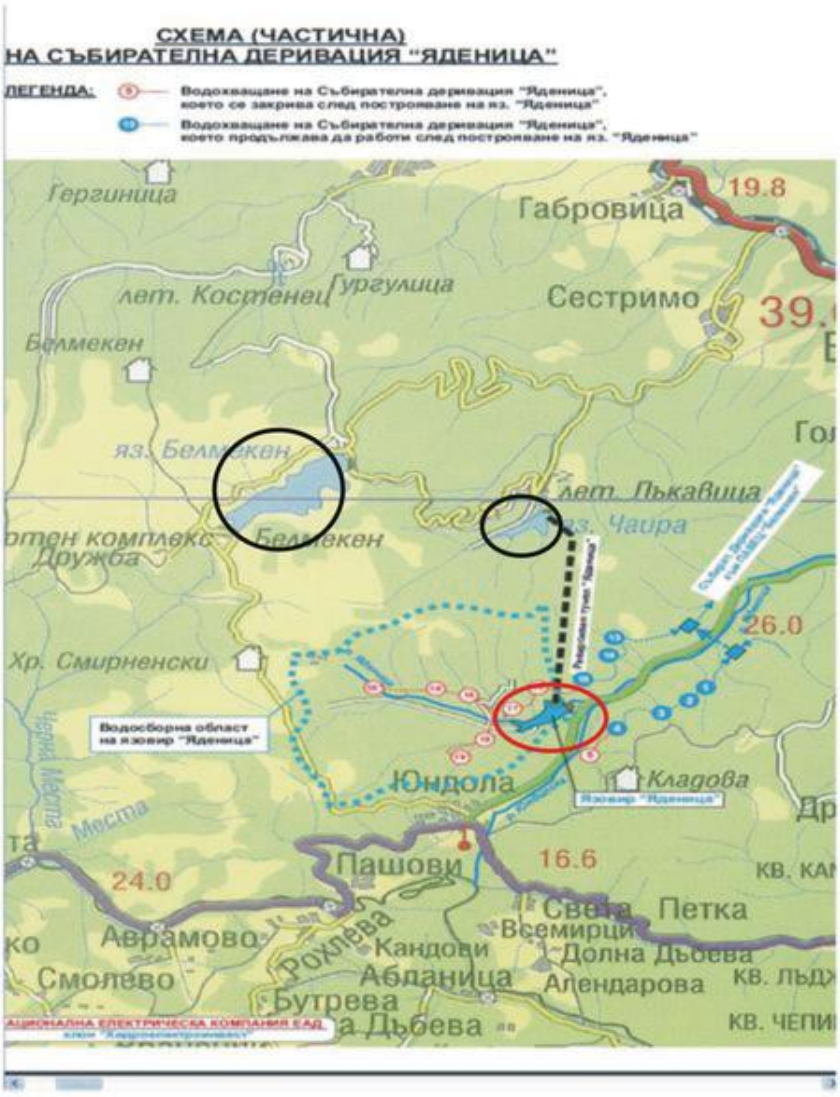
B. In the second part of Balkanka association's Complaint to the EC - the problematic water catchments for the Belmeken-Sestrimo-Chaira hydropower group, the Petrohan cascade and the Batak hydropower drive have been thoroughly described. Too many dry rivers bellow those catchments were registered, proving the fact that the operator - the National Electric Company /NEK/ is the biggest criminal against nature in Bulgaria. The Petrohan cascade has even deprived the villages of Barzia and Zanojene from pure drinking water…

Moreover - for each and every dry river discovered, a signal was sent to the Ministry of Environment and Waters /MOEW/. Since there was no reaction from MOEW, the only possible conclusion is that MOEW personnel doesn't dare to force NEK to follow the environmental regulations. Moreover - in the last few months MOEW has officially offered unlawful state aid by declaring an exemption for NEK from the duty to follow the law - for detailed information on this one see Appendix 3 to the EU Complaint, we are

lodging together with this document. Thus MOEW has proved that NEK, being a monopolist in Bulgaria, is absolutely uncontrollable - a state within the state, with its own rules and regulations. No one will argue with this statement in Bulgaria today.

2. Description of the future Yadenitsa dam

Here is a partial map of the Yadenitsa derivation channel and the new Yadenitsa dam:



Source:
https://drive.google.com/file/d/0B6ariUc5lVEUeDZZamNGQm45b2c/view?usp=sharing

The black circles are the old Belmeken dam /the bigger one/ and the Chaira dam. The red one is the new Yadenitsa dam. There still are some Yadenitsa channel water catchments and the small dam - Stankovi Baraki that are not displayed on the map.

The blue dots are old Yadenitsa channel water catchments that will continue working, transferring the water to the Stankovi Baraki dam to be used for the Belmeken-Sestrimo cascade again. The red dots will be closed, simply because the new dam will catch the water of the small Yadenitsa River anyway. There will be a big tunnel /7m diameter/ connecting the Chaira and the new Yadenitsa dams.

So it's obvious that the main water quantity for the Chaira PSHPP will be collected by the water catchments located In the Rila National park in the Belmeken dam. A part of it will be used by the Belmeken-Sestrimo cascade; the rest will go through the Chaira PSHPP to the Chaira dam, the volume of which is insufficient now to let Chaira PSHPP to work more than 8.5 hours in turbine and 10.7 hours in pumping mode. The new dam will provide for Chaira HPP the additional volume to let it work 20 hours in turbine mode

together with 22.5 hours in pumping mode and the remains of the old Yadenitsa channel, being a part of the lower derivation circle of channels, will still collect and deliver waters to the Stankovi Baraki dam for the Belmeken-Sestrimo cascade.

It looks like quite a complex new project, leaving not a single drop of water to run free in the entire Southwest, South and Southeast part of the Rila Mountain with the Rila National park included, a project managed by an uncontrollable operator that cannot be forced to follow the environmental legal acts.

The existing old water catchments in the entire mountain area will rest untouched. They will play an important role in a brand new project, although they do not meet any modern legal ecological or technical requirements.

The majority of water catchments are located in Rila National park - Natura 2000 Habitats and Birds directive site Rila BG 0000495. Part of the water catchments for the Yadenitsa channel are located in Natura 2000 Habitats directive site Yadenitsa BG0001386 and the new dam location, together with the rest of water catchments is located in the future Natura 2000 **Rila Bufer** Habitats and birds directive site..

In the end of 2015 we have shot a water catchment, belonging to the Yadenitsa channel. Here is a link to the video, showing the same picture, registered in Rila NP:
https://www.youtube.com/watch?v=cZ89h6JebuY

In the midsummer of 2016 we have shot the rest:
http://dams.reki.bg/0488-dam/2016-06-18

… knowing that NEK is the operator, the dry rivers are not a surprise at all.

2.1. Water permits

This year we have asked MOEW a question acc. to the Public Information Access Act about the actual water abstraction permits for the water catchments of the Belmeken-Sestrimo-Chaira hydropower group. We asked if the there are any water abstraction permits for the rivers and received an answer only for the Maritsa river basin that the hydropower group holds permits for water abstraction from the Belmeken dam, which is actually a water body, not a river /water site/ - in accordance with Additional provisions § 1. (1) 59. of the Water Act. The Belmeken dam is also described as a water body in the River Basin Management Plan of the East Aegean Region.

According to WA article 44(2) - the water abstraction includes the abstraction of water from water sites /rivers, streams etc/. Again, acc. to WA art.50 (1) separate water permits are issued for abstraction for and exploitation of water sites. /Not water bodies/

However, regardless of the legal framework which might be considered unclear, it is a question of normal sense after all, because each river water catchment has to have an actual water permit. What we know for sure is that one day the Water Act will be followed and all catchments, abstracting water from the small rivers with multiannual /long term/ water flow less than 100 l/sec, will be closed acc. to the provisions of art.118j of the WA. This will lead to an additional reduction of the water quantities for the hydropower group, which are not sufficient at present anyway.

2.2. Appropriate Assessment

There is a tender procedure going on for the implementation of such assessment about the new dam implications on Natura 2000 Habitats directive site Yadenitsa BG0001386. Here is a link to the official announcement:
http://www.aop.bg/case2.php?mode=show_doc&doc_id=668742&newver=2#B

The Terms of Reference deal only with the possible impact on Natura 2000 Yadenitsa BG0001386 site, not saying a single word about the **Rila Bufer** site. In the same terms there isn't a word about any cumulative effect of the **13** water catchments that

will remain operational, to be taken into consideration for the Yadenitsa dam impact either, not to mention any cumulative effect together with the two future SHPP along the same river.

There isn't a word about the main sources of water too - all of them located in Rila NP. To our opinion it is the main issue to explore. After all - what good will be done if someone manages to prove that the Yadenitsa BG0001386 site and the **Rila Bufer** site will not be harmed by building a new dam wall 109 meters high, while the Rila BG 0000495 site will be sentenced to everlasting river ecosystems destruction. It will be a life sentence for those rivers too, as well as for the Yadenitsa river, to stay completely dry during low water. Otherwise the waters will not suffice for the increased operational capacity of the hydropower group, just like they do not suffice today.

Proof:
http://www.aop.bg/case2.php?mode=show_doc&doc_id=668742&newver=2#B

Now - the **Rila Bufer** site is bold here because it is not announced yet. We know now that DG Environment has brought the Rila Bufer case in the European Court. Too late we have to add, because some six years have already passed since the site was approved by the National Council. And the announcement of the site was postponed again this year! The main reason for delay, are too many future investment plans that do not comply with any environmental protection rules. Amongst these investment plans the Yadenitsa dam is the biggest and most harmful one.

The future **Rila Bufer** Habitats and Birds directive site and all the rivers in it host priority habitat types and priority species hence hydropower is unacceptable acc. to the Habitats directive.

2.3. Questionable benefits of the new Yadenitsa dam

The possible benefits of the new Yadenitsa dam are announced by NEC in the following article:
http://nek.bg/index.php/en/about-us/hydro-pumped-storage-in-bulgaria-yadenitsa

Here is a citation: "*the four hydro units of the power plant will be able to operate at full capacity in a turbine mode for 20 hours and in pump mode for 22,5 hours.*"

There are three major benefits pointed out in the above article:
1. Improving the structure of generating capacities
2. Improving the structure of back-up capacity.
3. Role of Chaira PSHPP in the conditions of an increasing relative share of RES generating capacities.

2.4. Actual benefits

For the purpose of the turbine mode - the No1 and No2 of the above benefits are correct, but only for the first 20 - 8.5 = 11.5 hours. After that the water in both Yadenitsa and Chaira dams must be pumped back to the Belmeken dam for another 22.5 hours, to be used again - which means that the profit will be immediately lost. Alternatively - the Chaira PSHPP can continue working in the turbine mode only as a normal HPP and there isn't enough water available in the entire Rila mountain for the purpose - see section 1.4.2 again please. Especially if all those water catchments must release the ecological water quantity acc. to the Water Act.

And to increase the role of Chaira PSHPP in the relative share of RES we need either a new Rila mountain to build, or a 44.5 hours day. Otherwise we are just changing

the cycle - from 8.5-10.7 to 20-22.5 hours, which is not such a big deal, if the numbers are correct.

In fact - the actual benefits are: plus 5.93% in turbine mode and minus 5.78% in pumping mode, calculated on a 42.5 hour basis.

Are these percentages worth the current status of the new dam - "National Site" adopted by the Bulgarian Government and **PCI** /Project of Common Interest/, adopted by the EU, having in mind that the much more important pumping role is actually reduced?

2.5. Possible damage

The possible environmental damage has been described above already.

There are some technical aspects which we are not experts in, that have given the leading designer of the Chaira PSHPP - eng. Manol Timov the reason to disagree with the new dam at the time of the initial idea. Here is a link to the article proving the fact:
http://www.banker.bg/obshtestvo-i-politika/read/iadenica-skara-proektantite-na-pavec-chaira

We will stress the point only on one very important issue among eng.Timov's arguments which we have the necessary expertise to discuss - the new tunnel connecting the Chaira and the Yadenitsa dams will be built in the contact zone of Rila and Rhodopy Mountains, which is quite dangerous for the safety of the tunnel.

The entire area is located within the boundaries of a potential zone estimated and assigned to be with the highest seismic hazard possible in Bulgaria. Now do we have to remind the arguments concerning the Struma highway tunnel in the Kresna gorge where the seismic safety was one of the key issues according to the state for the tunnel to be excluded from the possible solutions? Is it possible that in the Kresna gorge a tunnel is not safe enough and in the Yadenitsa dam case it is, while the seismic Hazard and the Standards for seismic safety are the same? And the Kresna tunnel is at the foot of a single mountain only - Pirin, while the Yadenitsa tunnel is in the contact zone of two mountains... **Some paradoxes are inexplicable!**

Of course every other reason used against the Kresna tunnel is applicable for the Yadenitsa tunnel too, but seismic safety is the key issue.

Additionally - according to eng Timov, a second lower equalizer for the Chaira PSHPP is not needed to improve the operation of the power plant, which matches exactly our own assessment of the actual benefits, based on the above evidence.

But who are we supposed to believe - eng.Timov, or those hydrotechnical experts, who are trying to convince us about the announced benefits of the Yadenitsa dam, regardless of our own calculations? Regardless of the fact that we were convinced by the same experts for the Kresna tunnel safety being risky while the Yadenitsa tunnel isn't?

Here we do recall how the same experts managed to convince us about the necessity of another "sustainable" project in the nineties of the 20th century - the Jerman-Skakavitsa derivation channel.

The entire Sofia city, surrounded by four mountains full of water, was set on a drinking water regime, to persuade the public opinion about the necessity of a new Jerman-Skakavitsa derivation channel - which is not working at present at all. It's just that we had to spend some other people's money at the time. We don't believe those experts anymore. They had their moment of glory then, led by the knight in shining armour - the professor in hydrotechnics Alexander Yanchulev /mayor of Sofia city at the time/, who has allowed the big Iskar dam to be fully drained for hydropower purpose and for the needs of the last remaining Socialist mastodon - the Kremikovtsi plant.

2.6. Why do we need the damn dam then?

Regarding the Bulgarian government "National Site" status the answer is simple - many millions cubic meters of excavation, many millions cubic meters of backfill and concrete, thousands square meters of shuttering, thousands tons of reinforcement… Many millions BGN spent for assessments, studies, consultancy services, projects, documentation etc., to be prepared by the above persuasive hydrotechnical experts. Numerous companies involved and too much money to split….

Just like it happened with the Tsankov kamak dam. A major politician - Mr. Ahmed Dogan, philosopher by education, has officially received 1.5 million BGN for hydrotechnical consultancy services. The news was widespread by all media in the country - the only news that managed to emerge on the surface, with no consequences at all. But Mr.Dogan wasn't the only major politician in the country supporting the project.

These are the issues we actually need the new dam for.

Regarding the European Union PCI status - we do not have a single clue how on earth did that happen. The above article says that the Japanese Fund for Overseas Economic Cooperation has been invited to finance the new dam in 2000 and the Japanese Bank for International Cooperation (JBIC) is sending some experts to study the project. Obviously these institutions have abandoned the project, because the dam doesn't exist yet. Maybe the Japanese experts did discover something wrong, thus causing those financial institutions withdrawal from the project

Finally - here is another paradox: the main reason for the **Rila Bufer** site not to be announced yet is the future Yadenitsa dam. DG Environment has brought the Rila Bufer case in the European Court of justice. At the same time the EU is going to finance the Yadenitsa dam, announced as PCI.

Remembering the Yadenitsa tunnel safety paradox, can someone tell us what is going on here?

3. Conclusion and recommendations

1. Anyone who reads this document must realize that it is a Total Anarchy going on in Bulgaria, as far as water management and river ecosystems protection are concerned. It Is a proven fact by four horizontal Complaints, already lodged with the DG Environment of the EC, by two different NGOs.
2. Since the National Electric Company /NEK/ is the owner of the water catchments for the Belmeken-Sestrimo-Chaira and the Petrohan cascades, as well as the Batak Hydropower Drive - it is a proven fact that NEC is the biggest criminal against nature in Bulgaria. They don't care about nature at all, not knowing even the meaning of the word.
3. The same NEK, being the owner of the water catchments of the Petrohan cascade, has deprived the people of Barzia and Zanojene villages from pure drinking water. So they don't care for the people or the public interest either. The only interest they care of is the interest of NEK and of a few "businessmen" connected to politics and NEK.
4. About the infringements of the law by NEK, MOEW is informed and they cannot do anything to force NEK to follow any legal requirements. NEK is the monopolist here - they don't care of any law, a "state within the state" with its own rules and regulations.
5. NEK has misled the Bulgarian government and the EU decision makers that there will be a huge benefit from the new Yadenitsa dam. There isn't water enough to suffice for both the Chaira PSHPP and the Belmeken-Sestrimo cascade to work in the new

regime, unless the water catchments in Rila National park continue stealing every drop of water in the mountain, like they do today. And the water will still not suffice.

6. Bulgaria doesn't need new hydropower energy at all. Actually some powerful "businessmen" connected to NEK /meaning - to politics and politicians/ are exporting the cheap energy produced by the Kozloduy NPP, and the people are paying for the expensive production from RES, together with the excess of it. The more the production from RES - the more the cheap energy that can be exported and the higher the prices the people are paying for the rest. In a regional market with declining needs this might lead the system to a collapse.
7. Is there any sense in building a new dam only to increase the benefits of "pumping in vane" to waste energy, even if these benefits exist, no matter that they don't?
8. The leading designer of the Chaira PSHPP - eng. Manol Timov had his reasons to disagree with the new dam. It's best that someone asks him about the problem, prior to proceed with the project's implementation.

So those who will finance the damn thing must know, that they will be supporting Total Anarchy in the environmental protection to keep going on, financing the Biggest Criminal against nature in Bulgaria - NEK, which no one can force to follow the environmental requirements of the law. Thus the waste of energy excess in the country will be justified temporarily, not in the public interest, but only in the interest of a few people. When they build the damn thing - those, who have financed it, will receive ongoing information from us about what they have caused, every dry month.

The Yadenitsa dam project must be stopped once and for all!

"Nature has all the time in the world, we do not".

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