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

# HANDBOOK

## On the "SUSTAINABLE" FUTURE of HYDROPOWER IN THE BALKANS



Author:

/dipl.eng. Dimiter Koumanov/



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## **INTRODUCTION**

This is the true story of "sustainable" hydropower development in Bulgaria from the beginning of the 21st Century, up to this day. During the accession process in the EU, Bulgaria suffered a boom in small hydro investments to meet the European targets for the RES part in the overall electricity production mix, prior to the enforcement of the relevant European nature protection regulations, such as the EU WFD, the Habitats Directive, the SEA & EIA directives etc.

In this context Bulgaria is far ahead of the other Balkan states where, currently, the same hydropower craziness is taking place in just the same frantic way. And we have our bad Bulgarian experience to share, trying to prevent further destruction of the last remaining wild rivers in Europe for the sake of small hydropower - it will be proven hereafter that small hydropower is not worth the huge biodiversity loss it causes, and it makes no economical sense in the Balkan region at all. The problem obviously is the same as it was in Bulgaria - the EU always comes with hydropower first, while the environmental regulations may never come, or it may be too late when they get in force one day.

The preparation of this document was inspired by the following MOTT MACDONALD study:

<https://www.wbif.eu/content/stream/Sites/website/library/WBEC-REG-ENE-01-Final-Report-05.12a.pdf>

It is most interesting that the document in the above link was financed by the EU itself, without having even the slightest idea about the Balkan rivers' specific hydrology, not taking into account the great river runoff irregularity throughout the year. This is a huge mistake. It may mislead developers to believe that 3000 new small hydro plants can really be developed in the region, which is not reasonable to say the least.

Furthermore, our bad Bulgarian experience has shown that small hydro investments go together with a sustainable reputational and financial risk, both for the investors and for the financing institutions involved. We have several cases here already when existing small hydro plants were refused extensions of the Water Permits and there are many more to come. Actually, the time has come when the most destructive hydro plants will have to be decommissioned for the huge infringements of the EU legal framework committed by the competent State authorities during the authorization procedures, as well as to achieve the WFD objectives and the environmental goals of the EU concerning climate change.

New big hydro dams will also be discussed in the light of their sustainability. It was proven in Bulgaria that if a given big dam was planned during old socialist times, but was never built, there surely is some reason. At its time, Socialism was putting every effort to defeat Capitalism everywhere, including in the field of energy production from hydropower, thus all suitable for big dams spots along the rivers were utilized. The same reasoning is applicable to small hydropower - if Socialism did not get involved, there is the reason that it makes no economical sense, regardless of the environmental impact, because Socialism didn't care too much about environment when the capitalist enemy had to be defeated. Some small hydro plants were still developed during Socialism, to use the only appropriate spots along the rivers where small hydropower made some sense.

This document aims to help decision makers in the Western Balkan countries to better understand the "sustainable" future of small hydropower in the region. This future has already happened in Bulgaria, whether "sustainable" or not.

## **Acknowledgements**

*We dedicate the following document to all people in the Balkans fighting for their way of living, which largely depends on their healthy intact rivers. We hope that the issues discussed herein concerning the "sustainable" bright future of small hydropower in the Balkans will support our people in their fight.*

<b><u>Contents:</u></b>	<b><u>Page</u></b>
<b><i>I. IDENTITY AND CONTACT DETAILS</i></b>	<b>004</b>
<b><i>II. MODERN HISTORY OF SMALL HYDROPOWER IN BULGARIA</i></b>	<b>005</b>
A. Development in the 21st Century	005
B. Environmental impact assessments & Appropriate Assessments	005
C. The actual environmental impact	006
D. The small hydropower actual contribution to the grid	007
E. Horizontal social problem	008
F. Small hydropower in the light of Climate Change	009
G. Shortcomings in the legal framework	010
H. The EU Directives	011
I. Actions taken by local NGOs	012
J. <u>The outcome so far</u>	012
<b><i>III. MODERN HISTORY OF LARGE HYDROPOWER DAMS IN BULGARIA</i></b>	<b>014</b>
A. Development in the 21st Century	014
B. Actions taken by local NGOs and results	016
<b><i>IV. REPUTATIONAL DAMAGE AND FINANCIAL RISKS</i></b>	<b>016</b>
<b><i>V. MODERN HISTORY OF SMALL HYDROPOWER IN THE WESTERN BALKANS</i></b>	<b>017</b>
<b><i>VI. CONCLUSIONS AND RECOMMENDATIONS</i></b>	<b>019</b>

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## **ACRONYMS**

<b>MOEW</b>	- Ministry Of Environment and Waters of Bulgaria
<b>RIEW</b>	- Regional Inspectorate/s of Environment and Waters
<b>RBD</b>	- River Basin Directorate/s
<b>BDDR</b>	- Basin Directorate Danube Region
<b>EARBD</b>	- East Aegean River Basin Directorate
<b>WARBD</b>	- West Aegean River Basin Directorate
<b>BDBSR</b>	- Basin Directorate Black Sea Region
<b>SAC</b>	- Supreme Administrative Court
<b>WA</b>	- Water Act
<b>EIA</b>	- Environmental Impact Assessment
<b>AA</b>	- Appropriate Assessment
<b>SEA</b>	- Strategic Environmental Assessment
<b>RBMP</b>	- River Basin Management Plan
<b>HPP</b>	- Hydropower Plant
<b>WFD</b>	- the EU Water Framework Directive

## **I. IDENTITY AND CONTACT DETAILS**

### **1. Name:**

**“Balkanka”** Association, Sofia, Bulgaria

### **2. Sector / field of activity and location(s) where active:**

" Balkanka " Association is a non-profit, non-governmental organization, registered in Bulgaria for action in public benefit, on 07 August 2013, company file 203/2013 of the Sofia City Court, UIC 176566443. The main objectives of “Balkanka” are protection and conservation of river biodiversity, with a focus on conservation and restoration of indigenous Balkan brown trout /*Salmo trutta*/ populations in Bulgarian rivers.

## **3. ADDRESS OR REGISTERED OFFICE**

### **3.1. Surname and forename of representative/s:**

Ivan Pandukov, Chairman of the board

### **3.2. Where appropriate, represented by:**

Dipl.eng. Dimitar Koumanov, member of the board

### **3.3. Nationality:**

Bulgarian

### **3.4. Address:**

Petko Todorov blvd, bl.8, en. D, app.87

### **3.5. Town:** Sofia

### **3.6. Post code:** 1408

### **3.7. Country:** Bulgaria

### **3.8. Mobile telephone:**

+359 887 931 241

### **3.8. E-mail:** [dkoumanov@abv.bg](mailto:dkoumanov@abv.bg)

## **II. MODERN HISTORY OF SMALL HYDROPOWER IN BULGARIA**

Hydropower in Bulgaria has a long history. The first plant in Bulgaria - Pancharevo HPP started operation on November 1<sup>st</sup> 1900.

Currently Bulgaria is still ahead of the rest of Balkan states in both small and large scale hydropower development. Four big and about a dozen small old cascades with derivation channels from socialist times are operating with at least 500 water catchments on small rivers and streams, located mainly within the boundaries of Natura 2000 Habitats Directive sites and even in the National Parks Pirin and Rila. About 70 old individual plants were built in the 20th Century during socialist times too. The greatest number of small hydropower plants set into operation in socialist times was mostly aiming to utilize the water energy in the new irrigation channels.

### **A. Development in the 21st Century**

First thing's first, and when the country started campaigning for accession in the EU in the beginning of the new century, the first step was to unleash the boom of small hydropower without proper nature protection rules enforced.

It happened due to the power of the European hydro mafia. Since the year of 2000, around 170 new individual small HPPs on small rivers and streams were built and set into operation, without the relevant environmental EU Directives being enforced to guide the authorization procedures. In this way some 90% of the enterprises were authorized without an EIA and/or Appropriate Assessments. The Energy Strategy at the time was not a subject to a SEA either. As a result, the hydropower craziness caused destruction of the most beautiful rivers and streams in the country only to the profit a very few politically connected individuals, who had the information about those high feed-in tariffs and the other incentives small hydro was rewarded with, like purchase guaranteed at all costs and free connection to the grid financed by the energy distributing companies, not by the small hydro developers. The boom has happened so fast and in such secrecy, that the society did not have the time, neither the information for the future devastating impact on nature and local people's wellbeing, to react and fight. This all happened while the Water Sector in the country was not subject to any kind of strategic planning - such as River Basin Management Plans and Flood Risk Management Plans adopted, or stuff like that - it was a total anarchy back then.

In this way cases like the Blagoevgradska Bistrica River with 16 /sixteen/ HPPs along 20 kilometers of a small river and its tributaries were allowed. The most symbolic case, however, was allowed at the lower part of the Iskar River, with 35 pieces on 120 kilometers of the river, turning the entire river into a large cascade of stinking swamps with no river running in between at all.

The European banks, like the EIB and the EBRD, were playing the main role in the tragedy, financially supporting both directly financed projects and projects financed through different Financial Intermediaries /FIs/ using different credit lines. Individual projects were also financed by some European Commercial Banks directly - such as Unicredit and Reifeisen. Obviously, it is the good old Europe we have to thank to for all that hydropower craziness...

Currently the overall installed hydropower capacity in the country is around **2.7** GW, but at least **80%** of the capacity belongs to the old cascades and big dams from socialist times.

### **B. Environmental impact assessments & Appropriate Assessments. Post construction monitoring.**

At least 90% of the new projects built in the period 2000 - 2007 /when Bulgaria became an EU member state/ were approved by the competent authorities - RIEWs - with screening decisions stating that an EIA is not necessary. In this way environmental and social impacts as well as cumulative effects were not taken into consideration and public consultations were not held at all.



Since 2007 new projects were still allowed without an EIA/AA with only a few exceptions where such assessments were conducted only to prove that everything is perfect and there will be no environmental harm whatsoever.

There is one reason for that - the environmental and social impact assessments were carried out by teams of *"independent"* experts *paid by developers*, mitigation measures were proposed in the same *"independent"* reports, *paid by the developers*; Environmental and Social Management Systems /ESMS/ development and effective use were conducted always by the same *"independent"* experts that are getting *paid by the promoter* again.

That is why problems were always underrated, "mitigation" measures, like the most stupid fish passes on planet Earth /see the next section/, were only aiming to reduce expenses for developers and the post construction monitoring always shows that everything is perfect, otherwise it may turn out that the experts didn't know what they are doing at the beginning of the project and then disgruntled operators shall not pay.

So the application of those European EIA/AA procedures in recent years did not lead to any improvement, because the quality of the reports was Zero and it still is.

### C. The actual environmental impact

With only a few exceptions, **derivation type of small HPPs** always lead to total drying of the rivers in low water periods, which can be watched in the following very short videos for proof:

<https://www.youtube.com/watch?v=0mz1nGqJ4cw>

<https://www.youtube.com/watch?v=Fq4ZVHpjfyA>

<https://www.youtube.com/watch?v=7nlQp272qNs>

[https://www.youtube.com/watch?v=OJxOwJP\\_w50](https://www.youtube.com/watch?v=OJxOwJP_w50)

<https://www.youtube.com/watch?v=yPAskCMI8KI>

<https://www.youtube.com/watch?v=4ToGKuEINKY>

[https://www.youtube.com/watch?v=bXtPIM\\_9n\\_k](https://www.youtube.com/watch?v=bXtPIM_9n_k)

[https://www.youtube.com/watch?v=4ZcSDw\\_5cYY](https://www.youtube.com/watch?v=4ZcSDw_5cYY)

<https://www.youtube.com/watch?v=3UJOIONNOPY>

<https://www.youtube.com/watch?v=7ea2k7OrZJU>

[https://www.youtube.com/watch?v=zK8hcF\\_QiE0](https://www.youtube.com/watch?v=zK8hcF_QiE0)

Some of the rivers in the videos above once hosted even critically endangered species, listed in the Red Book of Bulgaria. They are all located in Natura 2000 Habitats directive sites, hosting priority habitat types and priority species within the meaning of the EU Habitats Directive.

As for the **run-off river type of HPPs**, due to the uncontrolled eutrophication, their lakes quickly managed to turn into large swamps. Most of these plants were built in parts of the rivers where the water is polluted to some extent, and more or less toxic silt was accumulated in the lakes. In 2008, after less than a year of operation, the brand new Lakatnik HPP discharged thousands of cubic meters toxic silt to kill the entire life in 30 kilometers of the Iskar River, located within the boundaries of a Natura 2000 Habitats Directive site. The same has happened in 2016 with the Luna HPP on the Botunya River, again in Natura 2000 Site, hosting priority habitat types and species. Some proof for the Botunya ecocatastrophe, including local people's protest, can be found watching the pictures & videos uploaded in the following link:

<https://dams.reki.bg/0161-dam/2016-09-21?setlang=en>

Due to the huge hydro morphological pressure and the devastating impact on the environment, any further hydro development in Natura 2000 Habitats Directive sites is prohibited in the BG Water Act since 2010.

As the construction of SHPs still continued, ongoing destruction has become fact: dried river beds, non-functional fish passes, destroyed riparian vegetation, etc. This is happening in Natura 2000 sites and beyond, disregarding the EU laws and with the

knowledge of the national authorities, which are continuously informed by Balkanka Association about the hydropower impacts in weekly reports.

The online HPP monitoring platform was developed by Balkanka Association in 2014: <https://dams.reki.bg/Dams/Map?setlang=en>

It contains a great number of evidences of the grim reality that goes with small hydropower hand in hand – just a few of those plants comply to some extent with the existing legal framework. From more than 170 SHPs visited and checked, only 6 of those plants were releasing the required Residual flow and have somewhat suitable fish passes.

Fish migration is also fully blocked by small hydropower intakes, and in Bulgaria the most stupid fish passes on planet Earth were built. Here are just four examples out of more than 100:

<https://dams.reki.bg/0267-dam/2014-05-04>

<https://dams.reki.bg/0070-dam/2017-11-03>

<https://dams.reki.bg/0481-dam/2009-01-01>

<https://dams.reki.bg/0309-dam/2016-10-09>

As a result, it is already proven that the actual environmental impact of small hydropower is really devastating, even in Natura 2000 Habitats Directive sites designated for the protection of priority habitat types and species, and the huge biodiversity loss is irreversible today.

#### **D. The actual contribution to the power system.**

This is the most important issue as far as small hydropower is concerned - the benefits are questionable, to say the least. Small hydro in Bulgaria adds about **2%** to the total energy production mix per year, but that is because the requirements on the Residual flow /"Ecological" flow which should be discharged below the intakes according to the law/ are not followed at all. It has nothing to do with *ecology*, by the way.

The rivers in Bulgaria and in the Balkans are famous with their huge runoff irregularity throughout the year. They are running wild like hell over the barrages during spring time only, when the huge amount of water cannot be captured and fully utilized. During the rest of the year the rivers barely trickle with the exception of a day or two after every heavy rainfall in the summer.

**75% of the average annual river runoff in Bulgaria is running through the rivers during April, May and June!**

Due to the big river runoff irregularity, in case the requirements on the Residual flow are followed, small hydropower plants should not be working more than half of the time throughout the year and then the contribution of small hydro to the energy production mix will be less than **1%** on an annual basis. It will be discussed hereafter that the problem with the runoff irregularity will increase with climate change and the best spots for small hydro have been occupied during Socialist times.

Every next small hydro leads only to a small benefit to the developer, for the unacceptable price to the society and to local communities - their dead river, together with a nonexistent contribution to the energy production mix.

**The most important thing**, however, is that during springtime the electricity consumption in our region is the lowest.

It turns out that we are forced to pay those high feed-in tariffs with guaranteed purchase at times of the year when we don't need that small hydropower and we have to buy it nevertheless, expensive as it is?

And we have to figure out how to waste that costly extra power by taking special balancing measures to prevent the system from exploding?

And balancing the system is the most expensive operation we have to pay for once again, to the pleasure of the small hydro mafia?

And we have to pay that price at the cost of our dead rivers too?  
**This will not go on forever!**

Obviously, someone has to tell the truth to them poor guys from Mott MacDonald and advise them gently to throw their study in the trash, instead of dreaming about some 3000 new small hydro plants across the Balkans!

<https://www.wbif.eu/content/stream/Sites/website/library/WBEC-REG-ENE-01-Final-Report-05.12a.pdf>

**So here is our good advice to the authors of the above Report - having in mind the other RES developments, the entire Balkan region does not have the balancing capacities capable to cope with such extra power during springtime!**

### **E. Horizontal social problem**

The impact of dry dead rivers on the chances for local rural development depending on agriculture and livestock breeding, and for all kind of river depending tourism - mountain, eco, kayak, rafting, rural, fishing, hunting etc. is quite obvious, therefore we shall not dig in it in detail. But we have many villages and cities that have problems with the drinking water supply for the sake of hydropower and this will not go forever either!

We will show only one case that happened in 2016 - the deliberate killing of Natura 2000 habitats directive site **Bilernitsite BG0000593**, we mentioned briefly before:



At least ten kilometers downriver full of toxic silt and the water is not suitable for domestic and wild animals to drink and is not suitable for irrigation purposes either. Fishing, hunting, bathing, Water sports - all of them are dead. Those villages downriver are sentenced to live in misery alongside their dead river for at least a decade.

Therefore, the hydro mafia must also have in mind that there is a very important social issue to be considered. In recent years local people here in BG started to fight against HPP Investment Plans, each and every time they hear of such. Just because they've already witnessed the damage caused to nature and to the people's wellbeing by new HPPs in the neighboring villages and rivers.

It has already happened in the villages of Rebarkovo, Lyuti brod, Svode, Lakatnik, the cities of Samokov, Smolyan a. o. In some of the villages local people have brought the case in the Supreme Court of justice and won the case. In the other cases MOEW has stopped the projects, knowing that if they hadn't, they would have lost the case again.

In recent years free anglers and angler's associations started to fight against hydropower too. Here is some proof for the pressure:





These people raise their voices against hydropower, for the simple reason that they have already witnessed its adverse impact on river ecosystems and they've had enough of it. There are many more like them to come in the nearest future.

## **F. Small hydropower in the light of Climate Change**

The problem with the river runoff irregularity will increase with the advent of climate change. Prolonged periods of drought will be followed by short periods of heavy rainfalls when the wild water cannot be fully utilized. This is already a proven fact by the statistics in Bulgaria for the last 100 years, and the problem will only grow.

On the other hand, for the same reasons riverine ecosystems will become more and more vulnerable. To protect the ecosystems, the requirements on the Residual flow discharged into the rivers below all kind of intakes will become more and more stringent. When the water flow is low, water gets warm and warmer water contains less oxygen, therefore the required Residual flow will have to be increased to support the last remains of any life in and alongside the rivers.

It must also be acknowledged that for the sake of hydropower dried up to the bottom riverbeds are not of any help to mitigate the climate change effects, but on the contrary. Natural running rivers are part of the Planet's cooling system, therefore the concession contracts must hold severe precautionary measures to be undertaken against those hydro developers who would not comply with the Residual flow requirements. Options for precise measurement and control of the Residual flow must be another key issue to be guaranteed as well.

In this way small derivation type of hydropower will rely on less water to be used and will become less and less reliable source of energy in the future.

For the same reasons, in the large lakes of the run-off type of HPPs eutrophication will flourish, especially when the water in the river comes polluted from industrial activities and urban waste waters above the intakes. The discharge of methane in the air will increase as a result, and methane is some 25 times more harmful than carbon dioxide as far as global warming is concerned.

Destroying riparian habitats, blocking all aquatic species' migration and sediment transportation, and even destroying protected species of high conservation value, are unsolved problems caused by hydropower, even if state of the art mitigation measures are implemented. Moreover, in recent years scientist started to realize that the transformation of free-flowing rivers into series of swamps with warmer steady water is fueling the degradation processes, giving much bigger role to the anaerobic metabolism of the ecosystems affected. Instead of the water natural physical aeration favorable to the diverse bio-community and microhabitats, hydropower reservoirs switch to degradation of nutrients in conditions of sedimentation and anaerobic environment. Totally in contradiction with the policy supporting Climate change targets and resilience, hydropower reservoirs release more and more green-house gas emissions and increase water toxicity - the older the dam, the bigger the problem.

Finally, turning the rivers into series of swamps, full of silt to the top, is not of any help in regards to any Flood risk management and protection!

**Obviously, in the light of climate change small hydropower is not a solution. It is just another problem to be solved.**

### **G. Shortcomings in the legal framework**

The legal framework concerning hydropower is insufficient and there are no rules of legal force for many of the problematic issues both at National and European level. For example - in Bulgaria and in the EU there is no common Ordinance on the design and maintenance of Fish Passes, there is no common National or European Methodology for the Residual flow /some call it E-flow which is not correct/ determination and measurement etc. There are no legal rules for general design of hydropower dams and plants too. At EU level some guidelines on the Residual flow exist - for example the following guideline:

<https://circabc.europa.eu/sd/a/4063d635-957b-4b6f-bfd4-b51b0acb2570/Guidance%20No%2031%20-%20Ecological%20flows%20%28final%20version%29.pdf>

This document contains only big words and good intentions, with no specific mandatory requirements. For example: in Bulgaria the Residual flow cannot be even measured both by the developers and by the controlling state authorities. In the above European guide on E-flows, there is not a word about this problem too. That is why the affected rivers in BG stay dry during prolonged low water periods and the state authorities were deliberately doing nothing to improve the situation.

Another source of information on the Residual flow determination, together with some comments, can be found in the following source - see the comments on the IFC Handbook on environmental flows too:

<https://www.transrivers.org/2018/2177/>

This document suffers the same shortcomings as the European Guide in the previous link, namely that it contains no specific instructions whatsoever. The only purpose of such poor documents is to send a message that all the problems caused by hydropower can always, everywhere be solved by means of the "E-flow" determination and by the implementation of the only mitigation measure always proposed - the fish passes, no matter how inappropriate some of them can be, but this is another long story.

A useful source of information about the fish passes can be found here:

[https://dams.reki.bg/uploads/Docs/Files/FISH\\_PASSES\\_BALKANKA\\_DRAFT4.pdf](https://dams.reki.bg/uploads/Docs/Files/FISH_PASSES_BALKANKA_DRAFT4.pdf)

In 2015 the described chaos in the regulatory legal framework in Bulgaria was confirmed even by high ranked state officials in the following letter of formal notice, released by Pavel Gudjerov - deputy minister of environment and waters at the time, pointing out the problems as they are described here:

[https://dams.reki.bg/uploads/Docs/Files/DOCUMENT\\_013\\_MOEW.pdf](https://dams.reki.bg/uploads/Docs/Files/DOCUMENT_013_MOEW.pdf)

Some short and long term actions of crucial necessity were discussed or even proposed in the above letter, yet again there was no further action taken by the state authorities to improve the situation at all. The reason is that there is rampant corruption and too many powerful people involved in all hydropower activities in the country. Therefore the above letter resulted only in the release from duty of the deputy minister a few months later.

However, regardless of the lack of proper legal framework, hydropower development is always referred to as "sustainable" all over Europe. We challenge every developer and every state official, or any other "expert", to point one single small hydropower plant he knows of in the Balkans, or elsewhere in Europe, that has not caused environmental harm! We will carry out for free full monitoring and assessment and we shall see together how "sustainable" that enterprise really is. In Bulgaria only a very small

number of HPPs /five to six/ are following the rules to some extent, but all of them have improper fish passes, without a single exception!

## H. The EU Directives

"Sustainable" hydropower development in the EU has to comply with many EU directives and additional decisions underpinning union law. Decisions of the European Court in relevant cases must also be taken into consideration. The amount of regulations is really huge and we shall not dig in it in detail. The most relevant to the hydropower issues directives, constantly breached in Bulgaria, are as follows:

### The SEA Directive:

<http://ec.europa.eu/environment/eia/sea-legalcontext.htm>

### The EIA Directive:

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31985L0337>

### The Habitats Directive:

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043>

### The Water Framework Directive:

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060>

### The Flood Directive:

[http://ec.europa.eu/environment/water/flood\\_risk/index.htm](http://ec.europa.eu/environment/water/flood_risk/index.htm)

These Directives were constantly breached during the authorization procedures of small hydro plants - it will be proven in the next section I.

We will focus here only on the major problem directly arising from the EU WFD, article 4, paragraphs (i) & (ii):

#### Article 4

##### Environmental objectives

*1. In making operational the programmes of measures specified in the river basin management plans:*

*(a) for surface waters*

*(i) Member States shall implement the necessary measures to prevent deterioration of the status of all bodies of surface water, subject to the application of paragraphs 6 and 7 and without prejudice to paragraph 8;*

*(ii) Member States shall protect, enhance and restore all bodies of surface water, subject to the application of subparagraph (iii) for artificial and heavily modified bodies of water, with the aim of achieving good surface water status at the latest 15 years after the date of entry into force of this Directive, in accordance with the provisions laid down in Annex V, subject to the application of extensions determined in accordance with paragraph 4 and to the application of paragraphs 5, 6 and 7 without prejudice to paragraph 8;*

Well, in Bulgaria we stand no chances whatsoever to meet the above objectives, namely to achieve good ecological status/potential of the surface water bodies within the WFD timeframe of the last possible extension, expiring in 2027. Much worse - we are suffering continuous deterioration of the surface water bodies with each and every new small hydro plant built and set into operation, in direct breach of art.4, paragraph (i) WFD!

**And one happy day we will have to pay the penalty for that!**

This is another price we will have to pay, which should be added to all the other costs we have to pay /described above in section D/, for the pleasure to have small hydro developers satisfied.

## **I. Actions taken by local NGOs**

At the beginning of the hydropower craziness several environmental NGOs started fighting to some small success, but they were fighting case by case, missing to see the overall picture. Although some biodiversity hotspots like the Struma River in the famous Kresna Gorge were really saved, dozens of other small plants were built every year.

**Back then, it was a horizontal problem that needed horizontal solution!**

With around 170 operational new small HPPs, facing the threat of another 300 more that had actual Water Permits and future plans for another 500 new pieces, in 2013 Balkanka Association has come to the idea that the society should be informed of the ugly truth about hydropower and its devastating impact. In 2014 Balkanka Association has set up /with the substantial help of *WWF-Bulgaria*/ an internet HPP monitoring platform <https://dams.reki.bg/Dams/Map?setlang=en> to a great success. The platform contains all information that refers to commissioning, design, construction and operation practice of hydropower in Bulgaria. The pictures and videos uploaded on the platform managed to turn the public attitude towards hydropower upside down, starting with the state authorities in the first place. Slowly, but consistently, national media started paying attention to the problem too. The public was informed and hydropower finally became a dirty word in Bulgaria.

Notwithstanding the fact that the national legal framework is insufficient to meet the challenge of protecting biodiversity along the rivers from dishonest hydropower operators, the HPP monitoring platform proves that even the existing regulations are not followed in Bulgaria at all. It was also obvious that all relevant EU Directives listed above have been constantly breached. This led to several complaints lodged with DG ENV of the EC. In 2015 WWF Bulgaria and Balkanka Association lodged two separate complaints on the issue, showing the dead dry rivers and the gaps in the implementation of the legal framework. These complaints were supported by many other environmental NGOs, anglers' and kayaking associations. The first complaint of Balkanka Association can be found here:

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

Since then, 8 /eight/ supplements were conveyed to DG ENV by Balkanka Association in the form of appendixes to the first original complaint, displaying new and new evidence on numerous infringements.

Formal letter of support was sent to DG ENV even by the National Museum of Natural Science at the Bulgarian Academy of Sciences, stating that the facts and problems addressed in the complaints are true. This letter of support can be found in the following link:

[https://dams.reki.bg/uploads/Docs/Files/DOCUMENT%20No3%20STATEMENT%20NAT\\_MUSEUM%20BAS%20.pdf](https://dams.reki.bg/uploads/Docs/Files/DOCUMENT%20No3%20STATEMENT%20NAT_MUSEUM%20BAS%20.pdf)

## **J. The outcome so far**

The results have inevitably come. The process started with those high feed-in tariffs and the other incentives all RES sources including hydropower were rewarded with /i.e. guaranteed purchase, free access to the grid etc/, which the society had to pay for, raising the prices of electricity for the households and for the industry to unacceptable levels.

In 2013, when a lot of HPPs and other RES sources were set into operation almost simultaneously, people received those invoices with double prices, got angry out on the streets protesting and the government had to resign! Thus the "sustainability times" have come to an end...

Furthermore, in the end of 2014, due to the bad fame of hydropower, all kind of incentives for future hydro projects /feed-in tariffs, guaranteed purchase, access to the grid for free etc/ have been blocked. Currently the old contracts full of incentives are still valid, but with some restrictions in regards to the balancing problems they are causing to



the power system. New projects are allowed access only to the free energy exchange market, with no incentives whatsoever. The same will happen to the old contracts for sure at the time of their first extension and that time is not far away.

**As for the devastating environmental impact, the payback time has come!**

The up-to-date results of all complaints concerning hydropower, lodged with DG ENV of the EC, resulted in several infringement procedures by the EC against Bulgaria as follows:

**- Concerning the poor quality of all EIA reports**

"March 2019 infringements package: key decisions". Check section 3. Environment:

[http://europa.eu/rapid/press-release MEMO-19-1472 en.htm](http://europa.eu/rapid/press-release_MEMO-19-1472_en.htm)

Regarding the Environmental Impact Assessment issues, here is a short citation:

*In **Bulgaria**, certain elements regarding screening decisions, Environmental Impact Assessment reports and information to the public do not adequately reflect EU standards, and the monitoring of projects with significant adverse effects falls short of requirements.*

**- Concerning the total failure to comply with the EU Habitats Directive**

July 2018 infringements package: key decisions - Section 4. Environment can be found here:

[http://europa.eu/rapid/press-release MEMO-18-4486 en.htm](http://europa.eu/rapid/press-release_MEMO-18-4486_en.htm)

Here is another citation extracted from the key decisions in 2018:

**Commission asks BULGARIA to improve implementation of EU nature legislation**

*..... The issue was first identified a decade ago, and although Bulgaria has since taken some measures to address the issue, this structural problem persists and the Commission regularly receives complaints about plans and projects that are authorised on the basis of inadequate assessments, or even in the absence of appropriate assessments.*

**- Concerning the total failure to comply with the EU Water Framework Directive**

Here is a very interesting report on the issue:

[https://ec.europa.eu/info/sites/info/files/annex\\_com\\_report\\_recommendations\\_en\\_2.pdf?fbclid=IwARoXCxRQ-a8ie-s25wE\\_7voNhozS1Szy\\_XAeOWJsN\\_nh1GNfxoliBu7Z9Xk](https://ec.europa.eu/info/sites/info/files/annex_com_report_recommendations_en_2.pdf?fbclid=IwARoXCxRQ-a8ie-s25wE_7voNhozS1Szy_XAeOWJsN_nh1GNfxoliBu7Z9Xk)

The recommendations for Bulgaria can be found on page 3, as well as the following short citation:

***Based on the findings emerging from its 2nd RBMPs, Bulgaria is particularly encouraged to:***

- *Improve its own monitoring capacities with a view to lower its dependence on expert judgment for assessing the ecological status/potential of its water bodies.*
- *Base the use of exemptions under Article 4(7) on a thorough assessment of all the steps as required by the WFD and transparently indicate, in all RBDs, which are the justifications for invoking the exemptions under Article 4(7) WFD.*

It should be noted that the report above holds general findings and recommendations only. It is not part of an infringement procedure yet, but one day it will be for sure! That is a promise!

**But what does an infringement procedure mean?** It means that one happy day the case will be brought by the EC to the European Court if the country concerned does not react properly to the first step of the procedure - *Letter of formal notice*. Then comes the next step of the EC - *Reasoned opinion* to give the Member State another chance to



start implementing the relevant EU Directives and improve the situation. Finally, if the Member State does not get in line with the recommendations in the first two notifications, the case is brought to the European Court. Depending on the decision of the Court, the country will have to take the necessary steps and/or suffer huge penalty to pay millions of EURO, until it shows results. In some cases the most harmful undertakings /in our case some HPPs/ will have to be decommissioned and removed as well.

Right now, Bulgaria is in the first phase - letters of formal notice for two infringement procedures concerning failure to comply with the Habitats and the EIA Directives. The infringements of the EU WFD are currently assessed in a preliminary process, called EU Pilot Application, which precedes the next infringement procedure. Here is the proof for the EU Pilot:

<https://dams.reki.bg/uploads/Docs/Files/Transfer%20to%20EUP%20-%20CHAP201502363%20-%20HPPs%20Balkanka.pdf>

Based on nine consecutive complaints Balkanka Association has lodged with DG ENV in the last four years, it is a proven fact that EU law concerning river protection was breached and Bulgaria will never meet the objectives laid down in EU Water Framework Directive. Having enough evidence on the matter, DG ENV has started the Pilot application which will inevitably lead to another infringement procedure against Bulgaria.

**And to avoid the penalties Bulgaria has started to react in the right direction finally!** Currently, all RBDs refuse extensions of all expiring Water Permits of HPPs not built up so far. A brand new HPP ready to start working was denied access to the grid; five operational HPPs were refused extensions of the Water Permits and one operational HPP was forced to cease operation. Yet, this is just the beginning...

### **III. MODERN HISTORY OF LARGE HYDROPOWER DAMS IN BULGARIA**

Although this document is focused mainly on small hydro, we will discuss in brief the total failure of large hydropower dams in the last two decades, a story from Bulgaria, which is really symbolic and enlightening.

#### **A. Development in the 21st Century**

At the beginning it should be underlined once again that every large dam in Bulgaria that made some sense, was built during Socialist times. Lot more dams were planned, but the projects were abandoned for one reason or another. The country had to become an EU Member State for those silly projects to be revived from the dead. Here we will describe the short stories of the biggest mishaps:

##### **A1. The Gorna Arda Cascade**

The Gorna Arda project was revived and started again in 1999. Initially the Turks were going to finance three big dams in the upper section of the Arda River in Bulgaria with more than 100 meters high dam walls each, and with a total of 170 MW capacity installed in the three HPPs below each dam. But the Turks have given up on this project.

In 2010 Austrian company EVN acquired 70% of the project's capital and in February 2017 it was announced by EVN that the project was thrown back in the refrigerator, regardless of the protests of the state owned National Electric Company /NEC/ of Bulgaria which is holding the other 30% of the enterprise.

**The grounds for freezing the project were "the big challenge of finding balance between the economical, the environmental and the social goals"** said chairman of the board Werner Casagrande in an interview for the BG National Radio.

There was local opposition, of course. First the Bulgarian Kayak Society filed in court a law suit at the preliminary stage of the project. Although the case was lost, it was the first signal that something may go wrong. In late autumn of 2016 Balkanka Association was invited to a meeting with the Board of the Project, where environmental issues were discussed. In the light of all relevant EU Directives, the "sustainability" of this project was obviously questionable, to say the least, and the decision of EVN to freeze the project a few months later was no surprise to anyone. Unlike the Bulgarian NEC, big European companies like EVN have learned their lessons in their past.

## **A2. The Tsankov Kamak dam.**

This is the most stupid dam on planet Earth!

Acc. to the official information it costs **1.0 billion BGN /500 million €/** at the very least, for only **80 MW** installed capacity of the Zankov kamak HPP. And the water is leaking out of the dam because the poor thing was built by the proud Bulgarian and Austrian hydro technicians in a carst region. This is the actual reason why the project was abandoned in the good old rational Socialist times - the poor dam can't hold the water!

However, due to the leakage of the dam, the entire riverbed of the Gashnya river was poured with concrete and the dam still loses so much water, that the Zankov kamak HPP, costly as it is, is capable to produce electricity equal to the work at full power of the turbines for about 40 /forty/ days per year at the average. So it cannot return its maintenance costs, not to speak of any profit in the unknown future. That is why in 2017 the proud owner of the dam - NEC, decided to keep searching for the holes the water is sneaking through and drained the dam down to the bottom. This was done with pauses - the river under the dam was either running wild like hell, or didn't run at all. As a result - the entire ecosystem in the river below the dam was destroyed. Some additional concrete was poured here and there and the poor dam is still leaking and will never stop.

Who knows, maybe what happened to this dam lit the lights of suspicion for EVN to freeze the Gorna Arda project. Pitifully, at the time when the Zankov kamak project was developed, there was no opposition on behalf of any environmental NGOs. Such opposition would have saved the poor Bulgarian people a lot of money wasted with the only idea some part of it to be split between the main actors - contractors and politically connected decision makers.

That is why this dam is famous as the Symbol of Grand Corruption in Bulgaria.

## **A3. The Yadenitsa dam.**

Now, this one would have been even more stupid than the Zankov Kamak dam, if only it was built. The area is more inappropriate for dams due to the huge tectonic faults and cracks in the footprint of the dam, which will not be able to hold water again, but that is not the main point. The main point is that the area concerned falls within the boundaries of a region assigned with the highest seismic hazard in Bulgaria. And the Bulgarian Seismic Design Code prohibits the construction of such dams under the circumstances.

This dam would have been co-financed by NEC and the EU Innovation and Network Executive Agency /INEA/. It was also announced as Project of Common Interest /PCI/ by the European Commission, but it will never be built, nevertheless.

This is also an old project started in the early nineties of the previous century. At the beginning of the new century the Japanese Bank of International Cooperation was invited by NEC to finance the damn thing. After a thorough review of the project that bank refused to finance it and ran away. Around 2006 - 2007 another Austrian Bank did the same thing for the risky dam. It was only the poor old EU again that was misled by NEC to believe that the project will hold water, which it wouldn't.

The Yadenitsa dam also falls within the boundaries of a proposed Natura Habitats Directive Site /pSCI/, it is also 300m away from another SCI, and the quality of the EIA/AA reports was possibly the lowest. It was stated by the EIA experts that a 110m high dam wall, 315m long, will not have any adverse impact on the river ecosystems whatsoever,

while the river hosts priority habitat types and priority species listed in Annexes I and II of the Habitats Directive.

## **B. Actions taken by local NGOs and results.**

The **Zankov Kamak** dam somehow managed to crawl under the spotlights without any opposition from the environmental NGOs. Balkanka Association was not established at the time and the other NGOs didn't have the necessary expertise to stand against the project.

The story of the **Gorna Arda** project has been told - kayaking and fishing organizations raised their voices against the project at its early stage of development and the investors had to back off, weighing their chances as not "sustainable" enough.

The **Yadenitsa dam** case has the most interesting story. The decision of the minister of environment to approve the EIA/AA reports was brought to the Supreme Administrative Court by Balkanka Association on the grounds that all relevant EU Directives /transposed in BG law/ were breached, as well as for the huge seismic risk. SAC ruled in favor of MOEW and Balkanka lost the case, regardless of the fact that the warnings for the huge seismic risk were confirmed by a statement of the Institute of Geophysics of the Bulgarian Academy of Sciences /BAS/. The statement was rejected by the court on the grounds that "*the statement of BAS is too short*", regardless of the fact that the investor - NEC, did not find a single expert in geophysics to state the opposite - that everything is fine. After all, it is the Grand Corruption taking the decisions in the most corrupt EU Member State and in this project there was too much money to be split.

Of course, DG ENV of the European Commission, together with INEA, were also notified about the infringements of the Habitats Directive and the WFD, as well as for the huge seismic risk. Two weeks ago the news came that DG ENV has come up with a negative assessment ensuring that EU money will not be wasted, which was actually the main target of corrupt BG decision makers. Therefore this dam will not be built either.

## **IV. REPUTATIONAL DAMAGE AND FINANCIAL RISKS**

The financial risks are too obvious - to meet the objectives of the EU Water Framework Directive, in Bulgaria the most harmful enterprises will be removed and all the rest will start operating in full compliance with the law. They will start releasing the Residual flow, increased to ensure life in the river will come back and severe measures will be undertaken to guarantee that the flow will always be released. The requirements on the Residual flow will be subject to a thorough revision and further disruption of river bio corridors will be blocked.

Fish and other aquatic life will come back into the affected rivers and the fish passes will be improved as many times as necessary, until it's proven that fish and other aquatic species actually migrate in both directions - up and downstream the rivers, all the time throughout the year. This actual state of the rivers means "Good Ecological Status" within the meaning of article 4 WFD. It will cost expenses to the operators and small HPPs will work only when there is water enough in the rivers and only when the energy they produce can be sold on the free market in competition with the other sources.

After all, they all were claiming their plants will cause no harm to the aquatic life in the rivers at the beginning of their investment plans, and the time has come for them to face their promises and fulfill them, right?

**As for the reputational risk**, we have some bad news for the guys from Mott MacDonald and for all the other guys who are still trying to promote small hydropower in our region - **hydropower is a dirty word around here now**, in Bulgaria and in the Balkans it definitely is!

**The other name of hydropower in the Balkans is Corruption** and we have not a single reason to believe that things are any better in the rest of modern world.

This is the biggest drawback of the poor Mott MacDonald Report we were discussing here - the blind support for the Corruption. It starts at the beginning of each project, with the statements of corrupt environmental "experts" that everything will be OK, aiming to develop controversial hydropower in the most Corrupt industrial sector in the most Corrupt states in Europe, without a single word about bearing responsibility for any future damage! What are these guys trying to make us believe - that hydropower does not cause deterioration of the surface water bodies, or that good status/potential of a river can be attained after a hydropower plant is built? Do they really believe themselves?

Moreover - if the existing HPP operators keep doing what they do, if the National administration keeps not doing what it is supposed to, and we keep showing to the public the results - **hydrotechnics will become a dirty word**, and that has already happened too.

Rivers are the veins of Nature and every normal human being has special feelings towards them. Feeling better when we see them running, watching them gunpowder dry is very hard to overcome. We have almost unlimited resources for communication, the HPP monitoring platform is visited some 5000 times per day at the average and everybody knows today what's happening, thus the consequences are inevitably coming.

Just one example - for the last five years the University of Architecture, Construction and Geodesy in Sofia has Zero students in hydrotechnics, due to its devastating fame. Does this sound "sustainable" to anyone:

**Zero students in the entire country!**

## **V. MODERN HISTORY OF SMALL HYDROPOWER IN THE WESTERN BALKANS**

We shall not dig in it in detail, but it is a total craziness going on right now, inspired by the hydropower mafia in Europe, supported by the EU itself. This comes to explain the appearance of the poor Mott MacDonald paper, paid by the EU with public money.

According to Mott MacDonald, there is room for nearly 3000 new small hydropower plants in the Western Balkans and that simply means that all the rivers in the region will be running in the penstocks very soon, because the craziness is actually a fact - hundreds of new small plants are currently under construction in the region. To our knowledge, the Champions at the moment are Serbia and Albania, but the other WB countries will soon catch up with them.

Serbia has future projects for 870 new pieces, Bosnia and Herzegovina - 300, in Albania 400 pieces are operating or under construction, including several big dams planned or under construction...

Of course, the European banks - the **EBRD** and the **EIB** are playing the main role once again, using European public funding, as well as many European Commercial banks such as **Unicredit**, **Reifeisen** and **Erste**, which are currently financing many of the projects in the Western Balkans. Some useful information about the financial schemes can be found in the following report, prepared by CEE Bankwatch Network:

<https://bankwatch.org/publication/financing-for-hydropower-in-protected-areas-of-southeast-europe-update>

**One of the reasons for the wild tsunami of new small plants in the Balkans is the extremely poor strategic planning!** For example - in Serbia they have the so called "*Katastar MHE u Srbiji*" for hydropower development, with all those 870 pieces planned. Katastar means cadastre obviously, but it is not a Katastar, it is a Catastrophe, that's what it is!

The WB6 countries have not even heard of strategic water management planning too - like for example River Basin Management Plans and Flood Risk Management Plans, yet they are so anxious to kill their rivers without the implementation of such plans.

Furthermore, to our knowledge, neither the poor Mott MacDonald report, nor the national strategic plans in the WB states for hydropower development were subject to a Strategic Environmental Assessment - for Serbia that is for sure! And all these plans should have been assessed in the light of their environmental implications and cumulative effects in the WB region, which is still full of biodiversity hotspots hosting priority habitats and species with the highest conservation value in Europe. They will be destroyed for the miserable profit of a few politically connected individuals, proudly called "*responsible investors in sustainable small hydropower*"

**Yet, this is really funny that the EU itself has financed the Mott MacDonald "sustainable" report without a SEA, breaching its own regulatory framework!** Then it seems that the hydropower mafia is taking the key decisions in the good old EU.

**In regards to the Environmental Impact Assessments of individual projects in the WB countries,** judging from our own experience in Macedonia, the state authorities are satisfied with the mere existence of some kind of a document called Assessment, regardless of its quality, no matter how poor it may be.

In Macedonia all the hydropower investment plans hold a strange looking document proudly called "Environmental elaborate" and some have a strange sounding document more proudly called "Strategic Environmental Assessment /SEA/". None of these has anything to do with the requirements for the Environmental Impact Assessment /EIA/ and/or for the Appropriate Assessment /AA/ set out in the relevant EU Directives - Directive 2011/92/EU /amended in 2014 by DIRECTIVE 2014/52/EU/, as well as DIRECTIVE 92/43/EEC.

The quality of these "assessments" in Macedonia is sub Zero. For proof there is the simple fact that SEAs are not prepared for individual projects, are they! These guys do not even know what SEA means and still the EU and Mott MacDonald are dreaming about "sustainable" development of new hydropower in the region.

Needless to say that Public Consultations are never carried out and local people usually get to know about the destruction of the river their life depends on, just after the appearance of the diggers at the start of the construction works. In this context the story of the brave women from Krushchica blocking the access of heavy machinery to their river for 500 days and nights is really inspiring.

**As for the actual environmental and social impacts** of the operational HPPs in Western Balkans, they are always the same, just like in Bulgaria. Useful information on the environmental impacts of small hydro in the Balkans and its devastating impact can be found in the following report:

<https://bankwatch.org/publication/broken-rivers-impacts-european-financed-small-hydropower-plants-pristine-balkan-landscapes>

**Thankfully, there is local opposition growing,** because people in the Balkans already know what small hydropower means. They have witnessed with their own eyes the gunpowder dry riverbeds and the large lakes turning into stinking swamps, they have all suffered the devastating impact on their wellbeing and on the chances for local rural development based on agriculture, livestock breeding, all kind of river depending tourism, water sports and so on... And the resistance will only grow in the future.

**And local people in the Balkans started fighting.** The resistance in the cases of Boshkov Most /Macedonia/, Krushchica /Bosnia and Herzegovina/, Rakita and Temska /Serbia/, the fight for the Viosa and Valbona Rivers /Albania/, became famous worldwide.



Therefore, we believe that sharing our home Bulgarian experience is so important - what happened in Bulgaria will inevitably happen in the other Balkan states. At some point, sooner or later, we will all have to achieve good ecological status of the surface water bodies acc. to the EU WFD, remember? And it is absolutely impossible to be achieved on rivers "kissed" by hydropower. That is why, many of the projects in the Western Balkans currently under construction will have to be decommissioned and removed. The more they are being built right now, the more will be removed one day.

In the end of this section, having in mind the huge biodiversity value of the rivers in the Western Balkans that still remain intact, we would highly recommend the Study of Riverwatch & Euronatur for the determination of Hydropower No Go Zones in the region concerned. Everyone who's interested must carefully read the following ***Eco Master Plan for Balkan Rivers***:

<https://riverwatch.eu/en/balkanrivers/news/eco-masterplan-shows-value-balkan-rivers>

## **VI. CONCLUSIONS AND RECOMMENDATIONS**

The purpose of this document is to send a message to all hydropower developers and state authorities, responsible for the wild hydropower craziness currently going on in the Western Balkans. The conclusions are based on our Bulgarian experience, which shows that the uncontrolled development of small hydro in the Balkans is a huge mistake. Here is a summary of the reasons:

1. The Western Balkans region hosts the last remaining wild rivers in Europe, still full of life. The high biodiversity conservation value of the territories affected is undisputable - most of the new small plants are developed in Emerald sites, National or Natural Parks and even in Nature Reserves hosting many endemic and critically endangered species. These species are sentenced to extinction.
2. Local communities can benefit from the ecosystem services these biodiversity hotspots can provide for in a much more sustainable way than from small hydropower, which brings no benefits for local people at all. When the rivers get killed, there comes the end of the other chances for local development based on all kind of river related or rural tourism, water sports, angling, hunting, agriculture, livestock breeding etc.
3. The tsunami of new dams is spread in an absolutely uncontrolled way. It is not based on Strategic Planning properly assessed for its environmental impacts, as the EU regulations require. OK, the WB6 countries are not EU Members yet, but they are trying to promote small hydropower with the excuse that they are aiming to reach the EU RES development targets. Then, all national RES development plans and programmes must have been subject to Strategic Environmental Assessments under the requirements of the EU SEA Directive!
4. Regional strategic plans and programmes like the poor Mott MacDonald report must have been assessed in the light of their environmental impact under the EU SEA Directive too. It is totally unacceptable that the EU itself has breached its own directives, financing that report without a SEA.
5. It's also totally unacceptable that the EU financial institutions like the EBRD and the EIB are playing the main roles in the tragedy under these circumstances!
6. Most of the individual projects are developed without Environmental Impact Assessments and Public Consultations. Actually, *public consultation* is an unknown word across these territories.
7. In the rare cases when some sort of an EIA is carried out, the quality of the reports is always Zero, because these reports are paid by the promoters and the requirements of the EU EIA Directive are not implemented. For the moment this particular loss, however, is not too big, because for example in Bulgaria the quality of the reports is the same. Regardless of the fact that in Bulgaria the EIA and the Habitats Directives are

set into legal force, they simply are not followed, because the proud investors pay for the reports!

8. The whole craziness is happening when the national and European regulatory framework is insufficient. In most of the WB countries the Residual Flow is set at 10% of the average long term river flow, which is absolutely incorrect and insufficient! Thus the river ecosystems are sentenced to everlasting low water river state in which most of them cannot survive.
9. Regardless of the fact that the Residual flow is wrongly determined, it is not discharged under the intakes at all. Both developers and state controlling officers are not even able to measure that flow, even if they want, because there are no instructions for the measurement and the intakes are not properly equipped. Usually, there is no state control on this flow at all.
10. The only "sustainable" mitigation measures applied are the fish passes. They are always built as the poor "Pool Type" of the technical passes, which is absolutely inappropriate for the purpose, but it's cheap and needs a very small quantity of water to seem functional. In Austria and in Bulgaria it's proven that this type of fish passes is not providing chances for fish migration, but on the contrary - it actually is a trap!

Due to the above facts, the growing biodiversity loss in the region is huge and irreversible, and the Social price will be unacceptable to normal minds because we can forget about rural development and tourism in the affected territories.

But what about the benefits? Here they are:

### **The benefits**

11. The benefits for the society are miserable, to say the least. The contribution of small hydropower to the energy production mix in Bulgaria is negligible, regardless of the fact that the requirements on the Residual flow are not followed at all and much more water is diverted into the pipelines, than is actually allowed. When these requirements are complied with, the contribution of small hydropower to the grid will be nonexistent - no more than 1% on an annual basis.
12. The hydropower potential in the other Balkan states is pretty much the same as in Bulgaria. It is a mountainous region all right, but in Bulgaria we have the highest mountain, and it is not too high - 2925m altitude of the highest peak in Rila Mountain. Therefore, if the wild development in the other Balkan states stops at the same point where it was blocked here in BG, the contribution of small hydro will be more or less the same.
13. Wild hydropower development was blocked in BG too late - when the most beautiful rivers were killed. But still, the most appropriate for small hydropower spots along the rivers were occupied, and they will be able to add no more than 1% to the energy production per year. If we kill all the rest remaining rivers, they will contribute no more than another 0.5%, which is not worth the damage!
14. The Balkan rivers are famous with the great river runoff irregularity. We don't have high mountains around here, therefore, the greatest part of the water is running in the rivers during springtime, when the electricity consumption is the lowest, but the production from small hydropower is the biggest.
15. The water in our wild rivers cannot be fully captured and utilized by small hydropower during springtime. To guarantee the Residual flow discharge during the rest of the time throughout the year, small hydropower will be able to operate occasionally, only a day or two after heavy rain falls. In the springtime small hydro is producing a huge amount of electricity when we don't need it and the extra energy that we don't need is rewarded with guaranteed purchase at those high feed-in tariffs, nevertheless.
16. To prevent the power system from collapse, the extra energy has to be somehow wasted and the society has to pay the price to the balancing systems in addition to the other prices paid for the pleasure of the hydro mafia. We have also paid with our killed rivers in the first place, let's not forget about that and add it to the bill!

17. All Balkan states will have to meet the requirements laid down in the EU WFD, namely to achieve good ecological status of the surface water bodies and good potential of the HMWB not later than the end of 2027. If the goal is not achieved, the society will have to pay another price in the form of a penalty from the EU! Furthermore, we already have to comply with the requirements to prevent deterioration of the surface water bodies' status, which we breach with each and every next new HPP set into operation!
18. In the light of climate change the requirements set out to protect the river ecosystems will become more and more stringent. To meet them hydropower operators will have to make new investments, for example - for the measurement and control of the residual flow, for the improvement of the fish passes until fish and other aquatic species start to migrate in both directions, online video control and so on.
19. Finally, if all those planned HPPs are built one day, the entire river system in the Balkans will be running only in the penstocks to the profit of the politically connected individuals and normal human beings will fight. Actually, in the Balkans people are already fighting for some time and the consequences for the hydro mafia are inevitably coming:

### **The Consequences**

The consequences for the proud hydropower investors in Bulgaria have already come. In the last six years Balkanka Association has had several meetings with BG hydropower associations and individual developers. They didn't believe the hydro craziness will not go on and last forever, very powerful, politically connected persons as they were, untouchable by any law in the most corrupt country in the EU. What they didn't take into account is that when someone is constantly disregarding the law, political connections do not last forever either.

And, finally, when they kill so many rivers, cold bloodedly as they did, while the entire society is paying for their profit, an enemy more powerful and connected - the whole society may get angry and that is exactly what has happened in our country!

**They were also warned for two more very important issues they didn't listen to:**

1. It is in the best interest of the owners of all the existing plants, that the construction of future new plants gets blocked. They didn't believe and "*the monkeys on the branch became too many*" - we have such a proverb in Bulgaria.
2. It is in the best interest of the owners of the existing plants that are following the legal requirements to some extent /we have 5-6 pieces that are trying to/, that all the other existing plants do their best to comply with the same requirements.

The hydro lobby didn't hear the warnings at the time and small hydropower is suffering a severe business "climate change" in our country nowadays. The turning point has come in 2013, when people got out on the streets protesting against the high electricity prices and the government had to resign. In 2014 all incentives for new projects were cancelled, yet the owners of existing plants were not disturbed. But in 2017 the letter of DG ENV came to announce the Pilot Application based on several Complaints of Balkanka. The Pilot application itself was full of questions and recommendations to the national authorities, and the payback time has come!

Currently, in Bulgaria all future plants that are not built and finalized, are refused extensions of the Water Permits, one ready to operate plant was denied authorization to start working, as well as access to the grid, five of the most harmful existing plants received refusals for extensions of the Water Permits and, finally, the most criminal plant of all, with the most significant violations during the authorization, was blocked for good and will never work again! If anyone does not believe, we strongly recommend that someone asks the most powerful in BG "*Hydroenergy Association*" of the owners of small to medium plants.

The reason for the misery of small hydropower today is hidden behind two actual infringement procedures concerning violations of the Habitats and the EIA Directives of the EU, and another future infringement procedure for huge violations of the EU Water Framework Directive coming forth!

### **Recommendations for the Western Balkans:**

The WB6 countries are some 15 years behind Bulgaria in the same process. They should learn from our experience and must not repeat the same mistakes! The conclusions to be drawn are too obvious to be specified again, except for the following short recommendations:

1. Throw the Mott MacDonald Report directly in the trash immediately!
2. There stands absolutely no chance for the objectives of the EU WFD to be attained in countries obsessed by such huge hydropower craziness, like the craziness in the Western Balkans now. The public interest of access to healthy rivers is overriding the interests of just a few investors in small hydropower. Each hydropower plant brings deterioration if not total destruction to the affected river and there is no exception!
3. Should any of the WB countries decide to keep going on with hydropower, the state authorities should read as carefully as they can the relevant EU Directives and implement them by the book!
4. River Basin Management Plans in line with the EU WFD, as well as Flood Risk Management Plans in line with the Flood Directive, should be prepared and adopted prior to any further hydropower strategic planning and development. As a minimum, this should also include considerations directly arising from two UN Conventions as well - the ESPOO Convention and the Convention on the protection and use of transboundary water courses.
5. The existing in each country plans and programmes for the future energy strategy should be subject to a SEA and each individual project should go on after a perfect EIA/AA in full compliance with the relevant EU Directives.
6. Strictly follow article 6.4 of the Habitats Directive and do not allow any kind of hydropower dam in biodiversity hot spots hosting priority habitat types and/or priority species listed in the relevant Annexes of the same Directive.
7. Turning the rivers into series of swamps full of silt to the top is not of any help in regards to Flood risk management and protection, but on the contrary!
8. Never build a new dam, no matter big or small, against the local people's will. If there is a need to resettle local people for the sake of hydropower, this is totally unacceptable in modern world!
9. It is in the best interest of the owners of all existing plants if the construction of all future new plants gets blocked and does not go on any further.
10. It is in the best interest of the owners of the existing plants that are following the legal requirements to some extent, if all the other existing plants do their best to comply with the same requirements. Otherwise, they will suffer the same bad reputation and misery together.
11. Always remember that once the EU Directives get into force, small hydro in the Balkan region will not gain any profit whatsoever, with very few exceptions. On the free energy market small hydropower in the Balkans stands no chance to survive.
12. The Balkan region does not have the balancing capacity to cope with the wild development of all types of RES including small hydropower during springtime. And hydropower is the most harmful to nature renewable source of all.
13. Don't forget to throw the Mott MacDonald Report directly in the trash!

**Especially for Albania**, we know that there are plans for the construction of several new big dams. Then take this piece of advice, please: *All the big hydropower*

*dams that made any economical sense were built in the good old Socialist times! If a given big dam was not built back then, there surely is a reason.*

Good ecological status of a healthy river means that in the river there is fish, benthos, invertebrates, riparian vegetation, insects flying around and stuff like that. This healthy state of all rivers has to be attained by 2027 at the latest in accordance with the EU WFD, and anyone who underestimates the problem will suffer the Consequences like we do in our country now!

Finally, it should always be recalled that: *Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such!*

#### **Final Note:**

This document is actually a warning. It is brought to the attention of local NGOs, state officials, decision makers and hydro developers in the WB States, hoping they will learn from our home Bulgarian experience before it gets too late. But we are pretty sure that no one will listen to what we had to say or maybe someone will, but just a few. Either way, we had to share all this information and experience to keep our conscience clear, just like we did the same thing in the beginning of 2013 with the officials and hydro developers in our country. They didn't listen too.

**THEREFORE, we challenge every of the targeted recipients to contact our BG Ministry of Environment and Water and ask our state officials if this warning holds water, or it doesn't!**

We are pretty sure that our authorities will have a lot to share now - **first** they should be asked to tell what happened in BG when the electricity prices got high in the sky. Here is the contact: [press@moew.government.bg](mailto:press@moew.government.bg)

**Another useful contact to confirm our warnings is the BG "Hydroenergy Association" - [info@hidro-energia.org](mailto:info@hidro-energia.org)**

**In the very end we will repeat it again, especially for our friends from Mott MacDonald - 75% of the annual river runoff in Bulgaria is passing through in April, May and June at the average.**

The mathematics is simple - we have 25% of the annual runoff flowing during the other nine months and the Residual flow has to be 10% of the average long term flow unless the natural flow is smaller, which means that during these months small hydro plants should not be working! There are no reasons to believe that in the rest of Balkan states the situation is any different!

Then, here is another quite suitable to the case old Indian proverb: ***When you notice you're riding a dead horse, the best strategy is to get off...***

**Place, date and signature of representative:**

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

Sofia, Bulgaria  
17.04.2019

  
/dipl.eng.Dimitar Koumanov/  
