



Financing for hydropower in protected areas in Southeast Europe



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Executive summary

Southeast Europe is experiencing a wave of hydropower projects. In a region with a deadly combination of Europe's last wild rivers, rampant corruption and inadequate nature protection, the potential for damage is immense. A recent study¹ by Dr Ulrich Schwarz found that almost half of the planned projects are in protected areas.²

In order to address this issue, we need to know who is making it happen. This research aims - to the extent possible given the secrecy around the financial sector - who are the main actors involved in financing hydropower projects in the region, both overall and inside of protected areas.

Based on screening of 1829 projects, we have identified 1355 greenfield plants³ either being planned now or having entered operation since 2005. By "greenfield" plants, we mean new hydropower plants built on locations that were not previously developed. Out of these, 200 are in operation and 113 are under construction. **In spite of the damage already done, there is much that can still be prevented: 994 of the identified projects are either planned or potential.** The real number is even higher - hundreds of new plants are planned in Serbia but could not be included in the research with the time and resources available, especially as the national cadastre of small hydropower plants is currently being revised.

In 989 out of 1355 greenfield projects the project company was identified. 343 of these projects are in protected areas. The companies involved range from large state-owned enterprises to very small local companies. Most projects are carried out by domestic companies. In Montenegro, involvement of a series of companies owned or represented by people known to be close to the ruling party has been observed.

Of projects involving foreign investment, Austria, Italy, Germany and Norway are the most frequently represented. Austria's Energy Eastern Europe Hydro Power GmbH is involved in no less than 27 projects, of which 11 are in protected areas. Another Austrian company, the Kelag group, is involved in 13 greenfield projects, of which 9 are in protected areas.

In 142 greenfield projects we have positively identified some financing sources⁴. It is likely that most of the potential projects and many of the actively planned projects do

¹ Schwarz, U., 2015. Hydropower Projects in Protected Areas in the Balkan Region. RiverWatch & EuroNatur, 34 pp.

² The research examined 1640 planned and potential projects in the region and found that no less than 49% of these or 817 projects are in protected areas. Of these, 113 are in National Parks, 23 in Ramsar sites, Biosphere Reserves or World Heritage sites, 131 are in Natura 2000 areas, 268 are in Nature Parks, nominated Emerald Sites or nature reserves, and 282 are in other protected areas such as landscape protection, natural monuments, official enlargement proposals and other officially designated areas.

³ This excludes plants that already existed but were renovated, plants that have been in operation for more than 10 years, and a small number of plants (11) which are planned to make use of existing structures like weirs, dams and mills.

⁴ This financing is in most cases for the construction of the project but in some cases is for project preparation rather than the works themselves.

not yet have financing secured, while others cannot be traced due to commercial bank secrecy. **The European Bank for Reconstruction and Development (EBRD) has been the most important actor (at least 51 greenfield plants supported with at least EUR 240 million).** The European Investment Bank (EIB) has provided the largest amount of financing by volume (EUR 437 million for 5 plants). In addition, the EIB has provided over EUR 22 million to at least 19 small and mini hydro power plants through commercial banks in the region. The EBRD has provided EUR 14 million for 8 plants. Both the EBRD and EIB have declined to identify the names of the projects, citing client confidentiality. The World Bank's International Finance Corporation (IFC) has supported at least 22 greenfield hydropower projects either directly or through financial intermediaries.

At least 30 projects supported by multilateral development banks are either inside of, or clearly impacting on, protected areas. Again, the EBRD is most visible here, with 21 such projects.

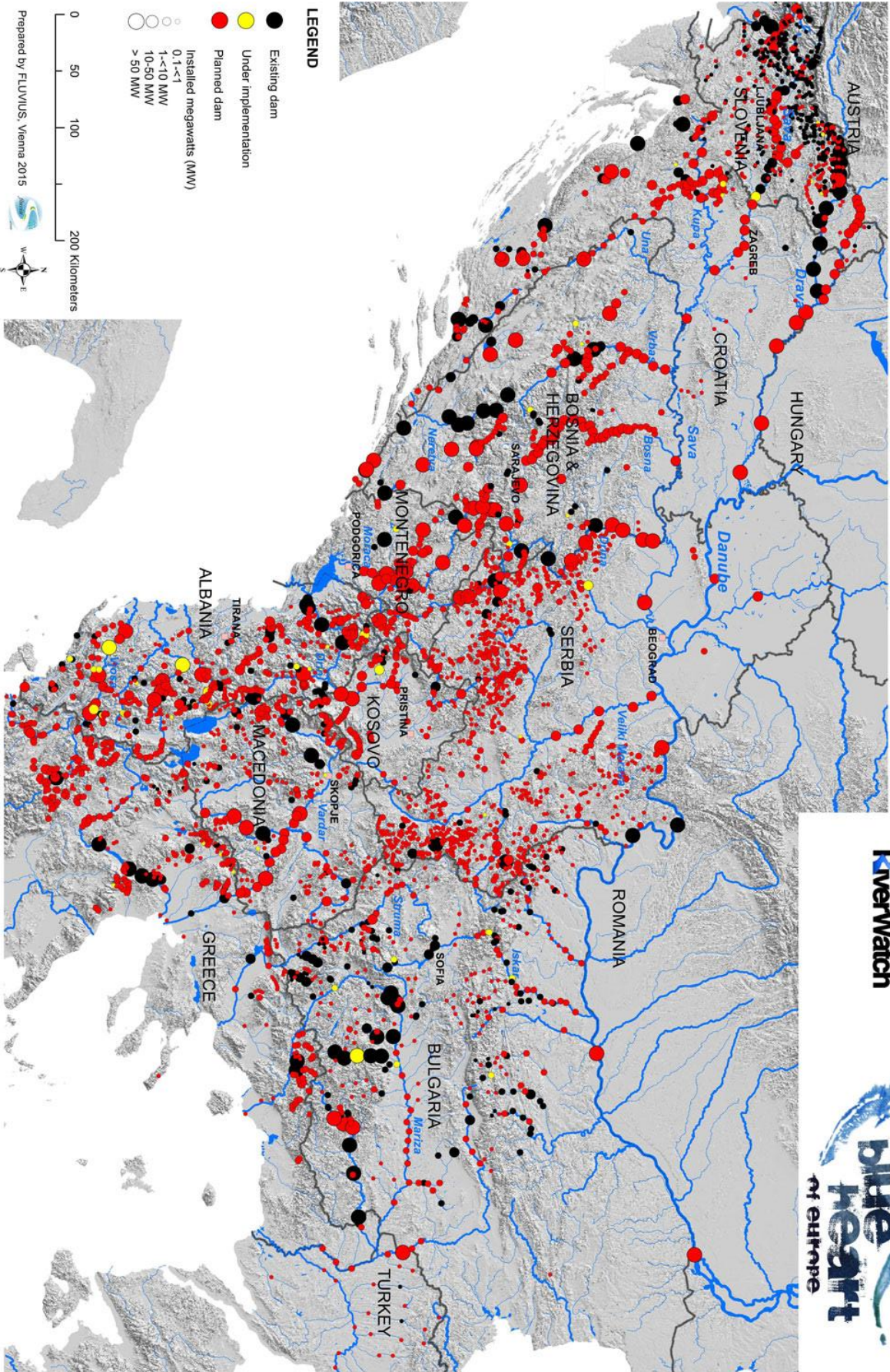
39 greenfield projects with commercial bank financing were identified. This most likely represents only a relatively small percentage of the total. Of those identified, 7 are in protected areas.

Of other public banks and funds, most active in supporting greenfield projects has been Germany's KfW and its subsidiary DEG, with 8 plants, 4 in protected areas in Macedonia and Bosnia and Herzegovina. The Norwegian export credit agency, GIEK, has not been confirmed to have backed any projects so far, but it has agreed to provide money for a joint EUR 55 million fund with the Montenegrin Investment and Development Fund (IRF) to finance small hydropower projects.

Given the above, it is clear that concerted action is needed. All financial institutions need to disclose all of their planned and approved loans for hydropower projects and to adopt or better implement stricter environmental standards including no-go zones on rivers of outstanding quality. Some also need to tighten up their criteria on lending to politically exposed persons.

The EU too can play an important role. As well as better supervising the financial institutions in which it has a decision-making role (the EIB and EBRD) and better regulating EU companies operating outside the EU, it needs to be more active in promoting the adoption of EU nature and water protection legislation in accession countries and the countries of the Energy Community. Ultimately, if the problems caused by hydropower plants are not prevented in these countries, the whole renewable energy sector will face a backlash.

Hydropower plants in Balkan rivers



1 Introduction

During the last decade, southeast Europe (SEE) has experienced a wave of hydropower projects. Bulgaria moved fastest to hand out concessions on small rivers and streams in the late 1990s and early 2000s and was joined by others in the mid-2000s. Albania was the most active in this regard, awarding concessions for no less than 435 hydropower projects from 2007 to 2013.⁵ The negative social and environmental consequences have caused debate, protests and lawsuits in Bulgaria and Albania, yet other countries in the region have not learnt from their experiences. Macedonia, for example, is currently very active in awarding concessions for the construction of small hydropower plants (SHPPs). In Serbia the real number of planned HPPs is unknown – there are more than 800 small hydropower plants on the national register of SHPPs, but this is currently being revised. What all the countries have in common is that there is a need to be vigilant. New projects are constantly appearing, while projects which were developed decades ago are rarely officially cancelled. Decades-old projects such as the Gornji Horizonti complex in Bosnia and Herzegovina, Ombla in Croatia and Moraca in Montenegro keep re-appearing no matter how environmentally or economically unacceptable they are.

No area is too sacred to have been left untouched by this outbreak. A recent study by Dr Ulrich Schwarz which examined 1640 planned and potential projects in the region found that no less than 49% of these, or 817 projects, are in protected areas. This research investigates - to the extent possible given the secrecy around the financial sector - who are the main actors involved in financing new hydropower projects in the region, both overall and inside of protected areas.

The research does not pretend to provide a complete picture of hydropower development in the region, but to the best of our knowledge it provides the only publicly available resource so far which attempts to bring together data from several countries in the region. The most major gap is Serbia, where we were not able to include anywhere near the real number of plants due to time constraints and confusion about which plans are still current as the country's cadastre of small hydropower plants undergoes revision. There are also numerous issues in all countries with lack of official data, inaccurate and contradictory data, duplications of project and river names, different names for the same projects, contradictory information about whether plants are in protected areas, and failure by the investors and authorities to admit when projects are cancelled. Nevertheless, we have tried to capture the situation as accurately as possible, and believe that the database gives a picture of the main trends. The methodology is provided in Annex I.

⁵ <http://eccsf.ulbsibiu.ro/articole/vol91/917kraja.pdf>

2 Overview of results

Based on screening of 1829 projects, we have identified 1355 greenfield plants⁶ either being planned now or having entered operation since 2005.⁷ Out of these, 200 are in operation, 113 are under construction, and **823 are actively planned**, and a further 171 are regarded as potential projects rather than current ones.⁸ The good news is that in spite of the damage already done, there is much that can still be prevented.

As mentioned above, **it is clear that the real number of existing and planned plants is much larger**, but this provides a sizeable sample on which to assess who are the main players. Plants which entered operation within the last ten years have been included in the research in order to get a picture of the financing, as it is rarely possible to get an insight into the financing of a project which has not been realised yet.

Of the greenfield plants identified, the largest number are in Albania (436) followed by Bosnia and Herzegovina, Macedonia, Montenegro, Croatia, Kosovo, Serbia (though the real number is much larger) and Slovenia. In Greece, only the Aaos river was included, as the upper reach of Albania's Vjosa. Only at a late stage of the research were six planned greenfield plants identified, but due to the lack of time and information available they have not been included in the analysis.

	Albania	Bosnia and Herzegovina	Bulgaria	Croatia	Kosovo	Macedonia	Montenegro	Serbia	Slovenia	TOTAL
Number of greenfield plants per country	436	236	79	116	96	172	128	57	35	1355

Of those greenfield plants whose capacity could be identified, almost all which have started operating since 2005 have been less than 10 MW. Of those potential or planned, there are also a large number (54) larger than 10 MW.

Number of greenfield plants - MW capacity	0.1<1	1<10	>10 (including 10 MW)
Built plants	14	29	3
Planned plants	24	67	54

⁶ Meaning new plants built on locations that were not previously developed. This excludes plants that already existed but were renovated and a small number of plants (11) which are planned to make use of existing structures like weirs, dams and mills.

⁷ Others already existed before 2005 (279), too little information was available to identify them (130), they were duplicates of other projects (46), they are planned conversions of already existing dams, mills or weirs (11) or they have been cancelled (8).

⁸ 'Actively planned' means they have been offered for investment, a concession has been issued, or other planning such as studies, inclusion in planning documents or public statements by decision-makers have been undertaken within the last 3-4 years. The category 'potential' denotes cases where potential has been identified in a study but no action has been taken to develop investment projects, plus projects such as those on the River Drava in Croatia which have been around for decades and currently seem unlikely to go ahead, but which have never officially been cancelled and could re-emerge.

Hydropower plants in protected areas

Out of the 1355 greenfield plants identified, 563 of them have been identified either in the recent study by Dr Schwarz or in subsequent data updates as being in protected areas. **Of these, 71 are already operating, 44 are under construction and 299 are planned/potential.**



Albania's stunning Vjosa river. This section would be impounded if the Kalivac project goes ahead.

2.1 The companies behind the projects

In 989 out of 1355 greenfield projects we have been able to identify the companies which manage the projects (project sponsors). 343 of the projects with identified sponsors are in protected areas. Most of the companies carrying out small hydropower projects are relatively anonymous small companies, while as expected, the larger energy companies such as the state-owned Elektroprivreda companies in Croatia, Serbia and Bosnia and Herzegovina are often behind the larger projects, either with private partners as in the Gorna Arda case in Bulgaria or not, for example in the Boskov Most case in Macedonia. In Albania almost all the projects are carried out by the private sector, including the larger ones, ranging from well-known names such as EVN (Ashta) and Statkraft (Devoll) to those much less obviously associated with the energy sector, such as Italian waste management company Bechetti (Kativac).

Very few of the companies have any significant internet presence, but depending on the country and on whether its business register discloses company owners, it has sometimes been possible to see who are the investors behind the companies (either individual people or other companies). The most noticeable results here are:

In Montenegro, **involvement of a series of companies owned or represented by people known to be close to the ruling party has been observed** (see Montenegro country profile). It is unclear whether this trend is more present in Montenegro than in the other countries or simply better exposed there.

While most projects are carried out by domestic companies, out of those which involve foreign investment, countries neighbouring the region and those with a strong hydropower tradition such as Italy, Norway and Austria are the most frequently represented. **The presence of Austrian companies and banks, as outlined in the box below, is most pronounced.**

There are few companies with more than a few projects, but **one company stands out: Energy Eastern Europe Hydro Power GmbH**, owned by Wien Energie - Wienstrom GmbH; Energie-Zotter-Bau GmbH & CO KG and Fras Beteiligung und Beratung GmbH (Austria). **It is involved in no less than 27 projects, of which 11 are in protected areas** (see table on page 12).



The controversial Medna Sana project built by Austria's Kelag group near the Sana springs in Bosnia and Herzegovina.

Another Austrian company, **the Kelag group** and its Slovenian subsidiary **Interenergo**, is involved in **13 greenfield projects, of which no less than 9 are in protected areas**. One of these, **Medna Sana**, has for several years been subject to protests by local people supported by NGOs like the Center for Environment, as it is being constructed near the source of the beautiful Sana river in Bosnia and Herzegovina. Kelag is owned by the Kaernten public authority (Austria), RWE (Germany) and Verbund (Austria, in turn half-owned by the Austrian government).⁹

⁹ http://konzern.kelag.at/content/page_eigentuemer-9268.jsp

Austrian companies and banks

Austria is perceived internationally as one of the more environmentally conscious countries, but if it wants to keep this image it will need to address the activities of its companies and banks in the hydropower sector in southeast Europe.

In addition to **Energy Eastern Europe Hydro Power GmbH** and the **Kelag group's** involvement in numerous projects, including those in protected areas, various Austrian companies and banks have been involved in hydropower projects across the region. A few of the more striking ones include:

Enso Hydro GmbH and the **Development Bank of Austria (OeEB – Oesterreichische Entwicklungsbank AG)**'s involvement in the **Lengarica** project on a tributary of the **Vjosa** river in **Albania**

EVN's involvement in the planned **Gorna Arda** cascade on the **Arda** river in **Bulgaria** and its construction of the **Ashta 1 and 2** projects in **Albania**

GLA Holding's involvement in the **SHPP** projects **Jasicje** and **Ocka Gora** in **Montenegro** and the **Sutjeska S3, S-J-2 and S-J-3 Jabusnica** projects near the **Sutjeska National Park** in **Bosnia and Herzegovina**

Erste & Steiermaerkische Bank is the most frequently occurring commercial bank identified in projects in **Montenegro** and **Serbia**, including some in **Montenegro** which have clear links to politically exposed persons (see **Montenegro** country section).

Interenergo/Kelag (plants marked * are in protected areas)			
Bosnia and Herzegovina	*Medna Sana 1	Bosnia and Herzegovina	Melina/Novakovici
Bosnia and Herzegovina	Zapece	Montenegro	*Vrbnica 1
Montenegro	*Vrbnica 2	Serbia	Vlasotince
Kosovo	*Decan cascade / Decanit (Decan)	Kosovo	*Peja cascade / Kuqishta
Kosovo	*Peja cascade / Drelaj 1 (also Drelajt)	Kosovo	*Peja cascade / Shtupeq (also Shtupeqi also Shtupec)
Kosovo	*Peja cascade / Drelaj 2 (also Drelajt)	Kosovo	*Peja cascade / Rugova
Kosovo	Lumbardhi 2		

Energy Eastern Europe Hydro Power GmbH (plants marked * are in protected areas)	
Montenegro	Vusanje/Grla, Montenegro
Macedonia	Banjanska cascade / Banjanska 1
Macedonia	Banjanska cascade / Banjanska 2
Macedonia	Brestjanska
Macedonia	Ljubanska
Macedonia	*Mala Reka
Macedonia	Golemaca
Macedonia	*Malinska Reka
Macedonia	Kriva reka (1)
Macedonia	Kriva reka (3)
Macedonia	* Toranica
Macedonia	Recanska
Macedonia	Dupnica
Macedonia	Ljutacka (also Jutachka)
Macedonia	*Oraovica
Macedonia	*Gabrovska-1 (also Gabrovnica)
Macedonia	*Gabrovska-2 (also Gabrovnica)
Macedonia	*Ljubotenska reka
Macedonia	*Bregalnica
Macedonia	*Kadina Reka
Bosnia and Herzegovina	Janjina J2
Bosnia and Herzegovina	*Botasnica Usce
Bosnia and Herzegovina	*Rujevica Usce
Bosnia and Herzegovina	*Cardak
Bosnia and Herzegovina	Radojna
Bosnia and Herzegovina	Suceska R-S-2
Bosnia and Herzegovina	Suceska R-S-1

2.2 The projects' financiers

Most small hydropower projects are financed by companies' own resources and commercial bank loans and guarantees. These cannot be systematically tracked as banks usually claim they are not allowed to disclose information about their clients. However occasionally news emerges of a particular deal.

In other cases projects have not yet managed to attract financing. We believe this is the case for all of the 171 'potential' projects and many of the 823 being actively planned.

In 142 greenfield projects we have positively identified some financing sources for the project.¹⁰

	Financed by own resources	Multilateral Development Bank financing	Commercial banks financing	Other public financing	TOTAL
Number of greenfield projects for which financing has been identified, not including planned or cancelled support.	47	75	39	29	142

Note: the total is not the sum of other boxes because some projects have more than one source of financing.

Projects with support from multilateral development banks (MDBs) such as the European Bank for Reconstruction and Development, World Bank Group and European Investment Bank make up the largest group, and will be explored in more detail below. On one hand this is a reflection of somewhat easier access to information about support from international development institutions than about commercial banks. However this should not detract from the fact that the international financial institutions are among the leading investors in the region. It should also be noted that even information from MDBs is not complete due to the existence of credit lines channelled through commercial banks, usually aimed at energy efficiency and small-scale renewable energy projects. Even though public money is being used, the final beneficiary is usually not disclosed, due to client confidentiality. This needs to change.

'Other public funding' refers to a relatively diverse set of financing sources, including export credit agencies, development finance institutions from particular countries such as Germany's KfW, or national development funds of the countries where the project is taking place.

Multilateral Development Banks

It is investors and financiers who are in the end key to whether projects move forward or not. The international financial institutions claim to be standard-setters and often enable to projects to proceed which would otherwise not find funds. We have identified EUR 819 million of financing for specific greenfield hydropower projects by MDBs. In

¹⁰ This includes any kind of support with a financial value, ranging from grants for project preparation and advisory services to guarantees to loans covering the majority of project costs.

addition, the EIB has provided EUR 22 million for 19 plants in Bosnia and Herzegovina, Croatia, Macedonia and Serbia through financial intermediaries, which could not be assigned to particular projects but is known to have been invested in hydropower. The EBRD has provided EUR 14 million for 8 plants in Croatia, Bosnia and Herzegovina and Macedonia.

The European Bank for Reconstruction and Development (EBRD) has been the most important actor (at least 51 greenfield plants financed directly with at least EUR 241 million. This does not include the Ombla plant in Croatia for which EUR 123 in financing was approved in 2011 and subsequently cancelled in 2013. Loans through financial intermediaries were included where they could be traced but the bank declined to provide information about the list of final beneficiaries.

The European Investment Bank (EIB) has provided the largest amount of direct financing by volume (EUR 437 million for 5 plants).

	EBRD	EIB	IFC	MIGA	TOTAL
Number of greenfield projects identified financed by MDBs (excludes planned and cancelled)	51	5	22	2	74
Amount of financing identified (million Euros)	241	437	18	121	

Note: the total of the greenfield projects is not the sum of other boxes because some projects have more than one source of financing.

In addition the EIB has provided EUR 22 million in support of small greenfield hydro plants through financial intermediaries in Bosnia and Herzegovina, Croatia, Macedonia and Serbia in 2010-2014. The EBRD contributed with EUR 14 million for 8 plants through commercial banks in Croatia, Bosnia and Herzegovina and Macedonia in 2013-2015. As neither of the banks was willing to share the list of final beneficiaries it was impossible to assign them to particular projects. The IFC provided EUR 3.4 million to Credins, an Albanian local bank, in support of 4 projects in 2013-2014.

The World Bank's **International Finance Corporation (IFC)** has supported 22 greenfield hydropower projects either directly or through financial intermediaries, including equity in the Lengarica plant in Albania. Seven of these are within the Gjader Cascade in Albania, for which the IFC provided advisory services. This year it has also provided EUR 5 million for renewable energy and energy efficiency to Unicredit in Bosnia and Herzegovina for on-lending to small projects¹¹, at least some of which are likely to be small hydropower plants. The bank also plans to provide further funds up to a total of USD 15 million (EUR 14 million), with the aim of leveraging around EUR 111 million to construct 40 small hydropower plants with a total of 80 MW in Bosnia and Herzegovina alone.¹²

¹¹ <http://ifcextapps.ifc.org/ifcext/spiwebsite1.nsf/78e3b305216fcd8a85257a8b0075079d/da80fcdc27f7bc8c85257e4b005a3f78>

¹² <http://pubdocs.worldbank.org/pubdocs/publicdoc/2015/10/779381443795253068/BiH-Snapshot.pdf>

In addition to individual MDB financing, the **Green for Growth Fund (GGF)**, set up by the EIB and KfW, with financing from the other IFIs mentioned above, has also financed Lengarica directly, with EUR 9.1 million.

As GGF provides financing to small renewable projects in the region through financial intermediaries, it is unwilling to share the data because of being bound by commercial confidentiality to its clients. It has shared with us the information that it has supported up to 10 small hydropower projects in the region.

MIGA, the World Bank Group's guarantee agency, has together with the IFC supported Ashta 1 and 1 in Albania. The World Bank's IBRD has supported project feasibility studies for Zhur 1 and 2 in Kosovo but the financing amount was not identified.

Looking at protected areas, we find at least **30 projects supported by MDBs which are either in a protected area or would clearly impact on a protected area**. This is likely to be an underestimate as projects with an impact on protected areas were added only in a few very obvious cases such as the Moraca cascade in Montenegro, which is not sited in a protected area but would impact the Skadar Lake Ramsar site downstream. Again, **the EBRD is most visible here, with 21 such projects**. This does not include the Ombla plant in Croatia (loan cancelled in 2013).

Number of greenfield projects identified financed by IFIs in conflict with protected areas	EBRD	EIB	IFC	IBRD	MIGA	TOTAL
Inside protected areas	21	0	5	0	2	26
Outside protected areas with direct impact	0	0	5	0	0	4
Total with impact on a protected area	21	0	9	0	2	30

Note: the total number of projects (30) is not the sum of other boxes because some projects have more than one source of MDB financing.

Between 1994 and 2011 the EBRD did not finance any greenfield hydropower plants larger than 10 MW, however it has been very active in smaller plants, particularly in Bulgaria and Macedonia. However since 2011 it has approved several larger plants in Georgia and one each in Macedonia and Croatia. The largest hydropower project now planned for financing by the EBRD in the region examined is the Zagreb na Savi complex in Croatia. While it in principle makes sense to generate electricity close to Zagreb, as Croatia's largest city and largest electricity consumer, the complex consists of several separate hydropower plants (exact number not yet defined), some of which are in protected areas. The complex would also impact on protected areas downstream on the Sava.



*The Lesce hydropower plant on Croatia's river Dobra has caused numerous problems since its commissioning in 2010.
© Goran Safarek.*

The EBRD – is it learning any lessons?

In January 2013, the EBRD's Project Complaint Mechanism ruled that the EBRD had failed to properly assess the Boskov Most hydropower plant in the Mavrovo National Park in Macedonia, the Ombla plant in the Vilina Cave–Ombla Spring Natura 2000 site in Croatia, and the Paravani plant in Georgia. In all three cases, the EBRD was found to have violated its own policies by improperly assessing the projects' impact on biodiversity before committing to them and by failing to implement procedures that would ensure meaningful public participation in the decisions about the future of the projects.

In the Ombla and Boskov Most cases, the EBRD approved the projects on the basis of inadequate environmental assessments before it even had detailed information about the fauna living in the protected areas, thus denying the public the right to be involved in decision-making while there was still a chance to make an impact.

Worse still, instead of learning from its mistakes, the EBRD then attempted to water down its Environmental and Social Policy during a subsequent policy revision, so that approving projects prematurely and without all necessary documentation would be allowed more easily. Only thanks to concerted NGO action and some support from key bank shareholders were these rollbacks avoided in the Environmental and Social Policy approved in May 2014 by the bank's Board of Directors.

Finally, in May 2013 the Ombla project – approved in November 2011 – was cancelled after public resistance to the project resulted in an additional nature impact assessment study being carried out. This study found that the project would have serious impacts on the Vilina Cave–Ombla Spring Natura 2000 area near Dubrovnik and the EBRD finally withdrew from the project. A further nature impact assessment has hopefully put the final nail in the coffin as it was rejected by the Ministry of Environmental and Nature Protection in July 2015.

However the Boskov Most and Paravani projects are so far still limping on.

Different forms of financing – some impossible to track

International financial institutions are most well-known for their direct lending for large infrastructure projects. However as we have seen above, support takes different forms as well.

Most relevant for southeast European hydropower projects are:

Technical assistance for preparing legislation or sectoral studies. If done well, this has the potential to ensure that standards are raised in the target countries, however in the context of widespread corruption, inconsistent rule of law and inadequate protection of valuable natural areas, it often ends up laying the way for controversial infrastructure projects without the MDBs having to take direct responsibility for the projects that result. Examples include:

- the EBRD's support for a study on small hydropower potential in Northern Montenegro,¹³ which is soon to be enhanced through a technical assistance assignment supported by the Czech government,¹⁴
- an EBRD-financed study on hydropower on the Gornja Cetina and Tihaljina-Mlade-Trebizat in Bosnia and Herzegovina¹⁵, about which little information is available online,
- a World Bank-financed study carried out by Norway's COWI consultants on the hydropower development potential of the Vrbas basin in Bosnia and Herzegovina,¹⁶
- the IFC's Balkan Renewable Energy Program, supported by the Austrian Ministry of Finance.¹⁷

Technical assistance grants for preparing projects sometimes come from the banks themselves or from their donor countries. Countries traditionally associated with hydropower such as Norway or states with international climate resilience agenda such as Canada often contribute to the donor funds. Examples include:

- The Norwegian government teamed up with the Western Balkans Fund and the EBRD Shareholders Special Fund in providing technical assistance to small and mini hydropower plants developed under an EBRD loan by PCC Hydro DOOEL in Macedonia.¹⁸
- Through the IFC-Canada Climate Change Program, the Canadian government provided the IFC with a EUR 1 million technical assistance grant to help the Albanian Credins Bank to finance energy efficiency and renewable energy (including SHPPs) projects. The IFC

¹³ <http://www.oie-res.me/uploads/Prezentacija%20Katastar%20vodotoka%20okt%202012.pdf>

¹⁴ <http://www.ebrd.com/work-with-us/procurement/pn-49827.html>

¹⁵ http://www.fmoit.gov.ba/userfiles/file/Studija%20o%20utjecaju%20na%20okolis_Sazetak%20za%20javni%20Uvid%20WEB%20kon.pdf

¹⁶ <http://www.wb-vrbasstudy.com/about-project.html>

¹⁷ http://www.ifc.org/wps/wcm/connect/region__ext_content/regions/europe+middle+east+and+north+afrika/ifc+in+europe+and+central+asia/countries/balkan+renewable+energy+program+%28brep%29

¹⁸ <http://www.ebrd.com/news/2011/new-ebrd-investment-in-macedonian-renewable-energy-sector.html>

provided Credins Bank with EUR 10 million to on-lend to Albanian companies and helped the Bank prepare a dedicated credit line for SHPPs.¹⁹

Alarmed at the lack of investments in various sectors in the Western Balkans, the EU has set up the **Western Balkans Investment Facility (WBIF)**²⁰, a joint initiative of the EU, International Financial Institutions, bilateral donors and the governments of the Western Balkans. The WBIF provides technical assistance to prepare studies and financing for infrastructure projects to move forward.

Equity: Some public banks, such as the EBRD and IFC, buy shares in companies to help them grow and improve their governance.

Financial intermediaries: Instruments to provide financing to smaller projects, which are tricky for large banks to deal with:

- special funds to provide loans, such as the Green for Growth Fund,
- private equity funds which buy a share of companies for a period of a few years and then sell them on again, and
- credit lines through commercial banks to reach smaller customers.

Of these, the latter has been most widespread in the hydropower sector in southeast Europe so far. Such credit lines have attracted criticism for various reasons including high interest rates in intermediary banks. Of most concern in this context, however, is that **it is impossible to track where most of the money lent through credit lines actually ended up**, due to banking secrecy issues²¹. While many commercial banks have declined to identify the hydropower projects supported from IFI credit lines, deeming the information commercially confidential, Credins Bank in Albania prioritised transparency and disclosed the data.

Public banks have begun to a certain extent to release aggregated information on how many projects of which type have been financed but only sometimes names of the actual projects. This means that the information in this briefing cannot be seen as comprehensive, but nevertheless gives an indication of the current situation.

Commercial banks

39 greenfield projects with commercial bank financing were identified. This most likely represents only a relatively small percentage of the total, though it is likely that most of the potential projects and many of the actively planned projects do not yet have financing secured. Of those identified, 7 are in protected areas. In some cases the precise

¹⁹ http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/learning+and+adapting/knowledge+products/project+examples/sba-project-albania

²⁰ <http://www.wbif.eu>

²¹ The Green for Growth Fund, for example, told us by telephone that the number of hydropower projects financed through financial intermediaries is small (less than 10) but that they cannot reveal exact information about the commercial banks' clients.

bank could not be identified since they are part of credit lines provided by the EBRD, and there is more than one bank running such credit lines within the project country.

No attempt has been made to sum up the total support from commercial banks for three reasons: first, the number of projects financed by commercial banks is most likely larger than have been identified here. Second, for many of the projects where commercial bank financing has been identified, it was not possible to identify the amount of financing involved. Third, as many of the commercial banks intermediated credit lines provided by the multilateral development banks, summing up the funds provided by commercial banks would lead to double-counting.

Of the commercially-financed projects identified as being in protected areas, three are being financed by Erste and Steiermaerkische Bank in Montenegro (Kaludara, Bistrica 1 by the Lim, and Crnja), although it is not clear whether the financing has been signed.²² In Montenegro and Serbia, Erste & Steiermaerkische Bank is the most frequently identified commercial bank, including in some projects in Montenegro with clear links to politically exposed persons. Erste may or may not be more involved than other banks, considering that most commercial financing deals are kept secret, however it appears that the bank needs to review its rules about who it does business with.

Considering the lack of information available about most involvement of commercial banks in hydropower projects it is difficult to draw any conclusions about which commercial banks are most involved in hydropower projects in protected areas in the region and dialogue about improving transparency and environmental standards on this topic is recommended with all commercial banks.

Other public funding

Most active in greenfield projects has been Germany's KfW. Deutsche Investitions- und Entwicklungsgesellschaft (DEG), which is part of KfW, is an investor in the consortium PCC Hidro Dooel which constructed the Galicka Reka, Patiska Reka, Brajcinska Reka and Gradecka Reka plants in Macedonia, all of which are in protected areas – Galicka Reka is even in the Mavrovo National Park and Brajcinska Reka is inside the Pelister National Park. KfW has also approved financing for the Vrilo plant near Livno in Bosnia and Herzegovina, which is on the Livno Polje Ramsar Site, as well as the Janjici and Cijeva 3 plants.

	Kreditanstalt für Wiederaufbau (KfW)	Green for Growth Fund, Southeast Europe (GGF)	Western Balkans Investment Framework (WBIF)	Croatian Bank for Reconstruction and Development (HBOR)	Investiciono - razvojni fond Crne Gore A.D.	IRBRS (Investment and Development Bank of Republika Srpska)
Number of greenfield projects identified financed by other public institutions	8	1	4	1	8	5

²² <http://www.mottmac.rs/projects/crnjahydroduedilligence/> ; http://www.gov.me/sjednice_vlade/125 Document 14

In addition to the above, the China Development Bank (CDB) has shown interest in the controversial Ulog project on the upper Neretva in Bosnia and Herzegovina but as far as we have been able to establish, no financing has been signed. It also showed interest in the Vardar cascade in Macedonia, however this project does not look like it will go ahead any time soon.

The Netherlands Development Finance Company (FMO), the Black Sea Trade and Development Bank and the Swiss State Secretariat of Economic Affairs (SECO) have all participated in financing rehabilitation of hydropower plants in the region, but not new build, as far as we have established so far.

The Norwegian export credit agency, GIEK, has not been confirmed to have backed any projects so far, but it has apparently agreed to provide money for a joint EUR 55 million fund with the Montenegrin Investment and Development Fund (IRF) to finance small hydropower projects.



The Lengarica hydropower plant in Albania, financed by the IFC, Green for Growth Fund and Austrian Development Bank, contested for its biodiversity impacts.

The role of the EU

The EU influences the development of the southeast Europe hydropower sector in numerous ways, not only through the financial institutions in which it participates. It has been mentioned above that EU-based companies are involved in some of the hydropower projects in the region, some of which are highly controversial, and raise issues about the accountability of EU companies operating outside the EU. On the other hand, **the EU can also make a crucial contribution to protecting precious rivers and associated habitats through its legislation such as the Birds and Habitats Directives and the Water Framework Directive.** Several of the countries studied here are not subject to this legislation as yet. The non-EU countries in the region – except

Turkey – are, however, Contracting Parties in the Energy Community Treaty²³, which requires them to apply certain EU energy and environment legislation including the Environmental Impact Assessment Directive, with the goal of widening the EU energy market in a way which ensures a reasonably level playing field for all actors.

However the lack of inclusion of the Water Framework Directive and the Birds and Habitats Directives in the Energy Community acquis means that the Treaty does not so far ensure that the hydropower sector in the candidate countries has to live up to the standards required in the EU.



A community protest in Skopje, Macedonia in February 2014 against support by the World Bank and the European Bank for Reconstruction and Development for hydropower plants inside the Mavrovo National Park.

²³ www.energy-community.org

3 Country profiles

3.1 Albania

Within the research 583 hydropower projects were screened in Albania. Out of these, no less than 436 projects have entered operations in the past 10 years or are now planned, turning Albania into a regional leader in terms of the number of greenfield hydropower plants.

Albania has a central public online register of hydropower plants managed by the National Agency of Natural Resources.²⁴ However, the information in the database is not complete and fully up-to-date. In order to access the hydro project data, one needs to look into information scattered over the annual reports of the National Energy Regulator agency (ERE), ERE decisions and government rulings. Although a few additional official materials containing overviews of concessionaires and electricity production and trading licence holders have been published, the information is not provided in its entirety. It is often very difficult to identify elementary details about the plants such as the location, name of the plants or names of all the parties holding the concession. 42 projects were identified either as existing plants, in operation for more than 10 years, or as rehabilitation of such plants. For 79 projects it was impossible to establish whether they were existing or greenfield.

Nearly three quarters of the greenfield hydropower plants (314 projects) are in the planning stage of development despite the fact that more than half of them received concessions back in 2009 and 2010. The long delays signal either administrative burdens, lack of financing on the side of concessionaires or speculation motivation.

The years 2005 to September 2013 when Sali Berisha was Albanian Prime Minister saw a frenzy of hydropower concessions. 2009 marked a record number of new concessions (133 plants identified), followed by 2013 (88 projects identified). The years 2011 and 2012 saw the most greenfield plants entering operation, with 10 and 16 plants, respectively.

There is a lack of comprehensive data for 2014 that would allow us to assess the rates of concession issuance after Edi Rama took over as Prime Minister. What can be observed is a move towards cancelling some of the long overdue projects. On 26 July 2014 the Ministry of Energy and Industry initiated cancellation of 14 concessionary agreements for 30 HPPs approved by Berisha's administration, including the Bence Tepelene HPP²⁵. It is unclear what practical repercussions the move had on the projects, as for example works on the Bence Tepelene HPP are ongoing. Local administration levels have also cancelled some projects, for example in January 2014 the Municipality of Librazhd

²⁴ <http://185.30.147.99/AKBNPortal/HE/Main.aspx>

²⁵ <http://gazeta-shqip.com/lajme/2014/07/26/anulohen-kontratet-e-koncesioneve-per-30-hec-e/>

annulled concessions for 11 HPPs planned for the area and impacting the Shebenik - Jabllanice National Park²⁶.

IFC and European public development finance endangers the Lengarica Canyon natural monument and a national park in Albania

In April this year, the European Parliament issued a resolution on Albania calling on the country to abandon development of hydropower projects – large and small – in protected areas, in particular the national parks.

Without naming any concrete project, the resolution alluded to the Lengarica hydropower plant and over 40 other plants planned for the Vjosa river basin and contested by environmentalists for their adverse impacts on one of the last remaining untamed rivers in the Balkans. Ironically, the project receives financing from the World Bank's private sector lending arm, IFC and European public development institutions that promote respect for biodiversity in their safeguards.

The history of the Lengarica HPP is symptomatic of the era of the Prime Minister Berisha, whose administration issued hundreds of hydropower concessions without any coordinated approach to their development. In May 2008 Hasi Energji acquired concession for the construction of a 8.9 MW hydropower plant. Four months later, the Albanian government declared the area a part of Hotovë–Dangëllisë National Park. Hasi Energji specialised in food import and exports, likely purchased the concession for speculative purpose and sold the concession to the Austrian company Enso Hydro in 2011. Enso Hydro had to apply for a new environmental permit because the project was already located within the National Park. At first, the Ministry of Environment issued a negative ruling over the permit in October 2011, granting it an approval only three months later.

Since then, the project sponsor attracted public finance support including EUR 6 million in equity from the International Finance Corporation (IFC), a EUR 5 million credit from the Development Bank of Austria and a EUR 9.1 million credit and a technical assistance grant from the Green for Growth Fund. The EIB, EBRD, KfW and IFC are some of the largest shareholders in the fund. While environmentalists maintain that the plant will reduce waterflow in the river and inflict damage on the ecosystems of the Hotovë–Dangëllisë National Park, the project sponsor and IFIs maintain that all the adverse impacts can be readily mitigated.

As of August 2015, 36 projects were under construction and 76 projects have been put in operation in the past five years. Among them are the Ashta 1 and 2 plants (53 MW in total) on the Drin river, the first large hydropower complex built since Communist times, which was supported by the IFC and MIGA. The 278 MW Devoll hydropower project consisting of three HPPs currently under construction by Norwegian Statkraft is the largest hydro concession awarded so far in Albania. Additionally, eight other concessions exceed the threshold of 50 MW of combined capacity. These include a 65 MW concession for 11 plants around the Gostime river, an 87 MW concession for five

²⁶ <http://www.senior-a.al/index.php/wp6-small-grants-to-env-csos-networks/16-newsinformation/wp6-newsinformations/198-librazhd-anullohen-11-hec-e>

plants to Turkish Ayen Enerji and a 126 MW concession for eight plants around the Shale river.

Concessions on numerous projects have apparently been decided with little to no consultation with the local population affected by the construction, sometimes sparking strong opposition. In 2014 local communities rallied against the construction of the Bence Tepelene HPP objecting that it diverts river water used by about three villages in the area, damages livelihoods and the ecosystem²⁷. The same year, four villages in the Municipality of Zerqan held repeated protests against the works on the Ternove HPP claiming the derivation of water for the plant has deprived them of irrigation water and drinking water resources²⁸. The local community and environmental groups have also taken a strong stance against hydro developments inside the Shebenik-Jabllanica National Park²⁹. Some sources assess that up to 45 new plants are planned or under the construction in the area³⁰.

Project sponsors and investors were identified in 421 greenfield projects. A phenomenon was observed as characteristic for Albania was that the companies holding electricity production license for a particular HPP are not always the same that had been awarded the concession. About one third of the projects have experienced transfer of the concession. This is the case of the Germani cascade where the concession had been awarded to Sigers shpk and Sina shpk companies but the production license was acquired by Sa Ga-Mat shpk.

Undisputedly, hydropower concessions have turned into a lucrative investment and on occasions an object of speculation. It is not rare to come across a project, where the concession had been awarded to a little known company with no experience in the energy sector which later sold the concession to another company. This is the case of the concession for the Lengarica HPP on the Vjosa river which was transferred from a no-name company specialised in food import and export to the Austrian Enso Hydro. Similarly, it is questionable whether “By Best Duty Free shpk” specialised in retail would have the suitable technical expertise for the development of the Trebinje and Dunice HPPs.

A number of litigation cases involving Albanian hydropower plants have been brought to the national and international courts. Litigation has often involved appeals against the results of concession tenders such in the case of the Myhejan cascade. Corruption scandals reaching the highest political ranks have also cast shadows on the tender procedures. The former deputy Prime Minister, Ilir Meta, was accused by the then Minister of Economy, Dritan Prifti, of asking him to favour a business in the tender procedure for the Egnatia Shushice hydropower concession. Hidden-camera footage purporting to show Meta trying to corrupt a hydropower concession was found authentic by American and British forensic experts. In January 2012, the High Court in Tirana acquitted Meta due to insufficient evidence³¹.

²⁷ http://channel7gjirokaster.blogspot.cz/2014/02/protesta-e-bences_7.html

²⁸ <http://www.arkivalajmeve.com/Ndertimi-i-HEC-it-banoret-e-Zerqanit-vijojne-protestat.1047531326/>

²⁹ <https://www.youtube.com/watch?v=L9Y3b-j4TsE>

³⁰ <http://investigim.al/en/45-hidrocentralet-qe-rrezikojne-parkun-kombetar-te-librazhdit/>

³¹ <http://seechangenetwork.org/wp-content/uploads/2014/11/Winners-and-Losers-Who-benefits-from-high-level-corruption-in-the-South-East-Europe-energy-sector-1.pdf>

The pool of project sponsors is quite diverse, featuring a mix of small Albanian companies with no declared links to foreign investors and subsidiaries of foreign investors, except for large scale projects where subsidiaries of foreign companies tend to be involved. Currently, Balkan Green Energy shpk owned by an Italian investor which operates 23 rehabilitated hydropower plants ranks as the top private electricity producer in terms of the number of plants. Diteko shpk with 11 plants, Energy partners Al shpk with 10 plants and Spahiu Gjanc shpk with 8 plants stand out as the largest private project sponsors in terms of the development of greenfield plants.

Foreign Investors identified through the research come from Austria, Israel, Italy, Norway, Turkey and United Arab Emirates. For historical and geopolitical reasons, Italian companies are most frequent among the foreign investors. SOL spa and Emmeclidue Srl have the highest occurrence.

Sources of financing were established for 30 greenfield projects. MDBs financed 16 out of these. The EBRD and IFC are the top multilateral financiers in the country, financing 8 and 15 projects respectively. Seven of the IFC-financed hydropower plants are within the Gjader cascade project. While the IFC has equity in the Lengarica HPP, it has channelled most of its support through an energy efficiency and renewables credit line to the local Credins Bank. The Bistrice 3 and the Helmes cascade have received IFC financing through this particular financial intermediary.

Community opposition to the EBRD-financed Ternove small hydropower plant in Albania

In 2012 the EBRD approved EUR 6 million in financing for the 8.3 MW Ternove hydropower plant in Albania. The scheme diverts runoff water from four mountain lakes that have served for irrigation purposes and as a source of drinking water for the local villages. The communities learned about the planned project only when the company brought in the machinery and initiated clearing of the forest in 2013. Prior to commencing the works, the project promoter Teodori 2003 shpk had not consulted the local population despite the fact that the hydropower scheme limits the community's access to water and reduces their use of the grazing and forested lands upon which they base their livelihoods. Such steps contradict the environmental and social requirements of the EBRD.

The villages have complained about the depletion of the water resources to the local authorities, Ministries and the Ombudsman, demanding the works on the hydropower plant be halted. In response they were told the project progressed to such an advanced stage that no major changes to the design could be made.

In 2014, the communities staged a series of protests that escalated into the construction site occupation and police arrests of protestors. In the light of cost overruns and delays on the project the investor has been seeking ways how to engage better with the local villages. Yet, the lack of timely consultations has seriously undermined the trust of the affected people.

The EBRD has financed the greenfield projects through the Western Balkans Sustainable Energy Direct Financing Facility (WeBSEDF). The support has targeted development of

small hydropower plants, including the Verbe-Selce, Rapuni and Cerruje cascades. While the EBRD provides support to small hydro power plants through local banks, it has not supported projects in Albania.

Nearly a quarter of the greenfield projects (94) have been planned inside protected areas or with strong influence on these. The project sponsors of the majority of the plants in protected areas (92) have been identified. MDBs have financed 8 of these, including the IFC-supported Lengarica and the EBRD-financed Rapuni 1 and 2 cascade. Out of the many protected areas to be impacted by the greenfield hydro projects, the National Parks stand out. The 51 MW Valbona cascade would impact the Lugina e Valbones National Park, the 29 MW Bushtrice concession would interfere with the Shebenik-Jabllanice National Park and the 126 MW Shale cascade will partially affect the Theth National Park.

3.2 Bosnia and Herzegovina

Of the 278 projects screened in Bosnia and Herzegovina, 236 are greenfield projects while 25 already existed before 2005. 14 could not be traced effectively or were found to be duplicates of other projects, while 3 had been cancelled. Of the greenfield projects, 103 are in protected areas, though many more are in areas which deserve protection based on the outstanding quality of the rivers.

In 2006 there was a sudden wave of hydropower concessions being issued – 47 were documented during this research. Since then the number has declined. Energy projects are planned on the entity level, and the concessions signed in Republika Srpska are more systematically documented than those in the Federation of Bosnia and Herzegovina. Therefore it is likely that some smaller projects have been missed, particularly in the Federation, and the data may reflect this.

In spite of nine years having passed since the peak of the concession wave, most projects are still in the planning stage (183 actively planned or potential). 18 are under construction and 19 have entered operation since 2005.

Out of the 236 greenfield projects, project sponsors were identified for 192 of them. Financing was identified for 26, while only two projects had confirmed MDB financing – Vranduk, where EBRD and EIB financing is signed and the small Kraljuscica 1 plant financed by the EBRD through Unicredit as a financial intermediary. Other greenfield plants for which the EIB and EBRD are considering financing are Krusevo and Zeleni Vir (in a protected area)(EIB) and Babino Selo and Vinac (EBRD). All of these have received support from the WBIF for project preparation.

Of the 14 projects with other public financing identified, three have been financed by KfW (Janjici, Cijevna 3 and Vrilo, the latter of which is in the Livno Polje Ramsar Site), and five by the Investment and Development Bank of Republika Srpska (IRBRS) (Bistrica 1-3 – partly in a protected area - Janjina and Jovana).

Of the most controversial projects, many do not have financing yet, for example the Ljuta canyon cascade, whose future is uncertain. One interesting case is the Medna Sana project, whose investor is Interenergo/Kelag. Interenergo states in its annual reports

that it does not take loans for the development of new projects by its subsidiaries, but lends money only within the company. In the Ulog case, on the upper Neretva, the future of the project is uncertain due to landslides on the site which have led to a re-think of the project location. Nevertheless, project sponsor EFT states that it is in negotiations with the China Development Bank regarding financing.³²

3.3 Bulgaria

Bulgaria is thought to have more than 500 small hydropower plants either in operation or planned, but for most of these no information was publicly available at the time of writing³³. Out of 187 projects screened, 79 are greenfield and of these, 35 are in protected areas. The other projects screened consist of 80 existing before 2005, 17 unclear, 5 cancelled and 6 duplicates.

Of the greenfield projects, 39 are already in operation, reflecting Bulgaria's earlier start with small hydropower concessions than other countries in the region. Three are under construction, but at least 26 – and possibly many more - are still planned and potential (only three 'potential') so the threat to Bulgaria's environment from hydropower is far from over. The remaining projects are of unclear status.

Project sponsors were identified for 58 out of 79 greenfield projects, and financing was identified for 19. The EBRD is the only MDB identified to have been involved in greenfield hydropower plants, with no less than 16 plants. The majority of these are part of the Vez Svoghe cascade on the Iskar river, one of which (Opletnya) has been identified as being in a protected area. Nine projects were identified as financed by commercial banks. Of these, 8 were using credit lines provided by the EBRD.

Of the upcoming projects, the most notable is the construction of the remainder of the Vez Svoghe cascade, and the Gorna Arda cascade consisting of three plants on the Arda river (partly in protected areas), carried out by a joint venture of Austria's EVN and Bulgaria's state electricity company NEK.

3.4 Croatia

Of 157 projects screened, 116 are greenfield projects and of these, no less than 97 are in protected areas.

68 greenfield projects are regarded as 'potential', meaning that no-one appears to have been developing them during the last few years, for example the series of projects on the river Drava. Many of them are in protected areas and should have been cancelled long ago. They would face concerted opposition if they reared their heads again. 39 projects are considered to be actively planned and 4 are under construction.³⁴

³² <http://www.eft-group.net/themes/front/assets/annualreport/2013-2014.pdf>, <http://koncesije-rs.org/dokumenti/2014/Izvjestaj%20Komisije%20za%20Koncesije%20za%202014.god.pdf>

³³ <http://dams.reki.bg/Dams/About>

³⁴ Dabrova Dolina 1, Prancevici, Krizanicica Mlin, Ilovac

Of the 107 plants regarded as actively planned or potential, project sponsors were identified in 42 cases. 25 of such projects are in protected areas. Among the private companies developing small hydropower plants there was considerable diversity, but most appear to be small companies in Croatian ownership. State-owned electricity company Hrvatska Elektroprivreda (HEP) is active in some of the most controversial projects.

Signed financing has not been identified for any project in Croatia. This is partly a reflection of the slow progress on most of the projects, but also reflects the difficulty of obtaining data on commercial bank loans.

The EBRD in 2011 approved a loan for the controversial Ombla project near Dubrovnik on the condition that an additional nature impact assessment study was carried out. In 2013 the study was completed and showed that indeed there would be serious damage. The bank finally cancelled its loan. HEP persisted with the project but another nature impact assessment was rejected by the Ministry of Environment and Nature Protection in July this year, hopefully closing the chapter on this environmentally, technically and economically risky project.

Potential EBRD financing was identified for the Zagreb na Savi complex, which consists of several separate hydropower plants. Nine plants have been considered at various times, four which immediately impact protected areas. The whole complex would also impact on protected areas downstream on the Sava. Currently seven plants appear to be part of the preferred project set-up, but the final variant - if the project goes ahead - is not yet confirmed.

Hrvatska Elektroprivreda is still pushing the decades-old Kosinj project, which would not only impact the Natura 2000 network but would also require resettlement of residents who have for years been in limbo, never able to invest in their properties and with the shadow of resettlement hanging above them. No financing has been identified for the project and as the process of attracting investors is still ongoing, most likely no financing has been arranged yet.

As for the smaller plants, many of the planned projects are in Karlovac county, which boasts four beautiful rivers – the Kupa, Korana, Dobra and Mreznica – but a host of plans for hydropower plants threatens to decimate them. One of only two greenfield projects which have gone into operation in Croatia during the last ten years, Hrvatska Elektroprivreda's controversial Lesce hydropower plant on the river Dobra, has already caused significant changes in the river.

3.5 Greece (Aos – upper part of the River Vjosa)

Six hydropower plants are planned in northern Greece, impacting on the upper part of the Vjosa (Aos in Greece) river and the Northern Pindos National Park. They are a part of a scheme which will divert water from the Vjosa and its tributary to an existing reservoir and then transfer it to the existing and planned hydropower plants. The

scheme, in particular the greenfield Metsovitiko plant, has faced opposition by local communities and environmentalists. As the information came to our notice at a late stage, this development in the Greek part of the Aaos basin was not included in the analysis. However the situation clearly deserves further attention.

3.6 Kosovo

In total 107 hydropower projects were screened in Kosovo. The vast majority (96 plants) were greenfield projects. Out of these seven are under construction, two have recently started operating and the remaining 87 plants are either in the early planning stage or concession was awarded on them. The fact that only rehabilitated existing projects and a handful of greenfield hydros have entered into operation in the past ten years indicates a difficult regulatory environment.

While nearly all of the planned greenfield projects in Kosovo are small hydropower plants, there are also plans for large scale plants: the 40 MW Rugova developed by Austrian Kelag's subsidiary and Zhur 1 and 2, totalling about 300 MW. Zhur is controversial due to the scale of physical and economic resettlement involved. A review of the feasibility study on the projects was financed by the World Bank.

Project sponsors were identified for 22 projects for which concessions have been awarded. The majority of the concessions are concentrated among a handful of companies: KelKos Energy Sh.p.k. (owned by Austrian Kelag), Triangle General Contractors Inc (USA) and Edelweiss Energy shpk (Swiss owner).

Triangle General Contractors Inc has a prominent position in hydropower development in Kosovo. This might be due to the political ties of the company's founder. The company was established by Florin Krasniqi, a Kosovar-Albanian-born American businessman and a deputy parliamentarian for the Vetëvendosje! political party in the Kosovo Assembly. In his 2014 income statement Krasniqi declared he holds shares of Triangle General Contractors as well as of the Drini i Bardhë HC-Radavc.³⁵

During the 2000s, Triangle General Contractors Inc invested in the rehabilitation of existing plants such as Lumbardhi (also known as Koznjer), Recan and Burimit. The company is active in the development of greenfield plants such as Mal, Erenik and Jasiq and has participated in multiple tenders for other HPPs.

The presence of multilateral financiers has so far been restricted to the support of rehabilitation projects and advisory services. The EBRD has financed the revamp of the Dikanc SHPP and the OPIC supported rehabilitation of Lumbardhi. The World Bank has financed consultancy promoting Public Private Partnership in the Kosovo energy sector and the review of the Zhur feasibility study. Should the regulations for hydropower development be streamlined, a larger presence of MDB financiers and foreign investors may be expected.

The research has revealed blunt disregard by the Kosovo government for nature conservation areas. Currently, half of the greenfield projects (52) are located in

³⁵ http://akk-ks.org/declaration/2014/Kuvendi_i_Republikes_se_Kosoves/Florin_Krasniqi.pdf

protected areas - national strictly protected areas and national parks. The Peja cascade promoted by Kelag's subsidiary is to affect the Bjeshket e Nemuna National Park and the Restelica cascade promoted by Eurokos JH shpk is located in the Mali Sharr National Park.

3.7 Macedonia

The Macedonian government has announced its intention to award up to 402 concessions for the construction of SHPPs.³⁶ Within the research 206 Macedonian hydropower projects were identified by name and screened. Out of these, 172 are greenfield plants that have entered operations in the past 10 years or are now planned.

Out of the greenfield projects, 96 have a concessionaire, have been offered for investment or are in the early stage of planning. In addition, 29 plants are under construction and 40 projects have been commissioned in the last five years. One of the recently commissioned plants is the 36 MW Sveta Petka promoted by the state-owned Macedonian Power Plants company (ELEM). The research has shown that ELEM is planning to develop 14 greenfield projects.

Project sponsors and investors were identified in 127 greenfield projects, largely thanks to the central online register. Apart from ELEM, EMK Malihidroelektrani DOOEL Skopje (owned by an Austrian investor), PCC Hidro DOOEL (owned by German investors including KfW's DEG) and SOL Hidropauer DOOEL (owned by an Italian investor) are the top promoters of greenfield hydros.

Financing sources of greenfield projects were identified in 27 cases, and 24 of those featured the MDBs. International public financial institutions have long history of supporting hydropower plants in Macedonia. In the late 1990s, the World Bank and KfW provided financing for rehabilitation of the existing plants such as Vrutok and Raven. As with other countries in the region, the World Bank's IFC has been performing advisory services on Public Private Partnership transactions and tender preparations such as the one for the 332MW Cebren and 193MW Galiste HPPs that have been repeatedly failing.

The EBRD is the key source of international development finance for greenfield hydros in Macedonia. To date, it has provided financing to 20 greenfield small hydropower plants. In addition, it has signed a credit and equity agreement with ELEM on the construction of the 68 MW Boskov Most, contested for its impacts on the habitats of the Mavrovo National park. The World Bank has considered financing for Lukovo Pole hydropower plant, another project located inside the Mavrovo national park. Altogether, two large and 16 small hydropower projects are planned inside the Mavrovo national park in Macedonia, the centre of the remaining population of the critically endangered Balkan lynx.

About one third of the greenfield projects (72 plants) are located in protected areas including national parks, Emerald sites, important plant and bird areas. Project sponsors of these plants were identified in the case of 63 projects. Financing of these plants was established for 23 plants. MDBs have financed 20 out of these. With 18 projects, the

³⁶ <http://shpp.moep.gov.mk/> As of writing the report, the portal was inaccessible.

EBRD has taken a lead in financing plants inside Macedonian protected areas such as Kamenicka in Osogovo mountains protected area, Trasonicka inside the Mavrovo National Park and Brajcinska inside the Pelister National Park. KfW is another international public financier for which protected areas have been no barrier when providing support for greenfield projects in Macedonia, including Patishka inside the Jakupica protected area.



Lukovo Pole in the Mavrovo National Park, the site of a planned dam and small hydropower plant under consideration for financing by the World Bank.

3.8 Montenegro

Of the 143 projects screened, 128 are greenfield. Of these none went into operation between 2005-2010, six went into operation 2010-2015 and 12 are under construction. 51 more projects were identified as being actively planned, while even more (55) are regarded as potential. As with Croatia, Montenegro features a large number of old projects in protected areas (for example on the UNESCO-protected River Tara), most of which are not being actively worked on and do not feature in the country's 2014 Energy Strategy, yet they are occasionally mentioned and need to be monitored.

Out of the 128 greenfield plants, 55 are in protected areas. Of these 55, Bistricka 1 (Lim) is in operation, Crnja and Ljeviska are under construction, and all others are planned or potential. Other small hydroplants licensed since 2007 and now in operation are Jezerstica, Orah, Rmus, Spaljevici 1 and Vrelo, while Konjska Rijeka 2, Sekular, Crni Potok, Ljubastica, Babino Polje, Jara, Trepacka 1, Trepacka 2 and Rastak 1 are under construction.

Montenegro's environment has long been threatened by large projects such as Buk Bijela on the Tara and the Moraca dam plants, but the increased number of plants under construction indicates that the danger from large projects is now being supplemented by a plethora of small ones. Between 2007 and 2015, 33 projects have been approved by the government, of which one is on a water supply channel so does not require a concession. Of the other 32 projects, 19 underwent a public tender while 13 were approved by means of the government issuing an energy permit. At the time of writing (October 2015), concession agreements for 26 of these projects have been signed while 6 are still expected by the end of the year. Of the 26 signed, 5 concessions have been cancelled and the others are still active. Concessions for small plants proliferated in 2008, when 8 concessions for 8 waterways were issued, covering 15 projects. In 2010 5 concessions were issued. In 2014, 6 concessions covering 9 projects were issued, perhaps indicating renewed activity in this direction.

Project sponsors were identified for 60 out of 128 greenfield projects, largely reflecting the number of dormant projects. Of these, 12 were in protected areas.

For larger projects such as the Moraca canyon and Komarnica projects which are planned to be implemented with strategic partners, these have not been found yet, and indeed a tender for Moraca already failed once in 2011.

For smaller projects, the sponsors vary widely. The most frequently occurring project sponsor is Hidroenergija Montenegro d.o.o, which has won concessions for no less than 15 projects (two in protected areas: Kaludara and Bistrica 1), either on its own or as part of a consortium, and is represented by controversial businessman Oleg Obradovic, who is known to be close to the ruling party.³⁷ Two projects, Slatina and Vrelo, are carried out by BB Energy, owned by Blazo Djukanovic, the Prime Minister's son.³⁸

Most companies appear to be locally owned but a Slovak company, Salix Energy, appears in the Rastak 2 project, and Austrian companies are identified as appearing in two cases. Energy Eastern Europe Hydro Power GmbH is attempting to carry out the Grla/Vusinje project near the Prokletije National Park, which is resolutely opposed by local people.

Interenergo/Kelag appears in a very intriguing set-up in the Vrbnica 1 and 2 projects. It is 75% owner of MHE Vrbnica d.o.o. along with AD Mehanizacija i Programat Niksic d.o.o. (5%) and Montenegro Metropolis Media (MMM) (25%). AD Mehanizacija i Programat Niksic d.o.o. is majority owned by Urende Limited Gibraltar, while MMM is owned 50% by Ladybird Holdings Ltd Belize and 50% by Stellite Ltd Belize.³⁹ Due to the lack of transparency of the Gibraltar and Belize company registers it has not been possible to trace the ownership chain further. Location in offshore financial centres is

³⁷ <http://www.vijesti.me/ekonomija/bemaks-i-obradovic-bi-jos-malih-hidroelektrana-167947> ; <http://www.dan.co.me/?nivo=3&rubrika=Ekonomija&datum=2015-02-10&clanak=475567> ; <http://www.crps.me> ; http://www.monitor.co.me/index.php?option%3Dcom_content%26view%3Darticle%26id%3D4906:kako-je-bemaks-preuzeo-hidroenergiju-montenegro-visoki-napon%26catid%3D3368:broj-1210-11%26Itemid%3D4628

³⁸ <http://www.poslovni.hr/svijet-i-regija/ukanovicev-sin-grad-malu-he-u-crnoj-gori-296318> ; <http://www.vijesti.me/vijesti/milioni-eura-za-elektrane-dukanovicevih-ljudi-847399>

³⁹ <http://www.savjetzaprivatizaciju.me/?wpdmact=process&did=NzYxLmhvdGxpbnMs> ; <http://pretraga.crps.me/Home/PrikaziSlog/1> ; <http://www.mek.gov.me/ResourceManager/FileDownload.aspx?rid=208962&rType=2&file=7%20Informacija%20o%20aktivn%20ostima%20na%20realizaciji%20prioritetnih%20projekata%20iz%20oblasti%20energetike.pdf> ; <http://mnse.me/code/navigate.asp?Id=14&stockId=149> ; http://www.interenergo.com/dateien/Interenergo-annual_report_2014.pdf

usually done either for tax reasons or to keep the identity of the company owner away from the public eye.

Another project company exhibiting cross-border ownership is Synergy d.o.o. which holds the concession for the Vrelo project and has a 97% ownership share in Hydro Bistrica d.o.o., which holds the concession for the Bjelopljaska Bistrica plant.

Synergy d.o.o. is majority-owned by Tomas Hajek, Director of Vodni zdroje AS, Prague, with minority participation of others including KIA Montenegro (the car company), run by Premier Djukanovic's 'kum' (godfather/best man) Vuk Rajkovic.

Apart from Synergy, the remaining three percent of ownership in Hydro Bistrica is held by Vodni zdroje AS, Prague (1%), Triangle General Contractors, Decani (1%), and Gradnja d.o.o. Bijelo polje (1%).⁴⁰

Triangle General Contractors is the same one encountered in Kosovo projects such as Mal, Erenik and Jasiq, and is owned by Florin Krasniqi, former parliament deputy for the Vetevendosje movement. The same company has the concession for the Djuricka 1 and 2 plants, under its 99%-owned subsidiary Plava Hidro Power d.o.o. Ulcinj, which it co-owns with Gradnja d.o.o. Bjelo Polje (1%).⁴¹

Another project sponsor worth mentioning is Canada's Reservoir Capital Corporation (RCC), which is supposedly promoting a series of plants on the River Lim. This project was chosen by the Energy Community as a regional priority in 2013⁴². Yet it does not appear in Montenegro's 2014 Energy Strategy or documentation on water use, Reservoir Capital Corporation does not mention it on its website, and Montenegrin NGO Green Home's enquiries to the Ministry of Economy about the project have shown that there is not even a preliminary project developed, so it is not clear what is going on and how the project got to be on the list of regional priorities.⁴³

As for financing, the MDBs have limited their activities to assisting with project preparation so far. The EBRD, as mentioned above, has financed a study on small hydropower potential in northern Montenegro, while the IFC was involved in the preparation of the Moraca dam projects, although it did at least stop there and refrain from financing the actual construction. An EBRD representative in 2014 told Bankwatch that concerns about the integrity of project promoters are one of the reasons why it does not do more financing of small hydropower plants in Montenegro.⁴⁴

⁴⁰ http://www.gov.me/sjednice_vlade/111 ;
<http://www.mek.gov.me/ResourceManager/FileDownload.aspx?rid=208962&rType=2&file=7%20Informacija%20o%20aktivn%20ostima%20na%20realizaciji%20prioritetnih%20projekata%20iz%20oblasti%20energetike.pdf> ;
<http://www.dan.co.me/?nivo=3&rubrika=Ekonomija&clanak=481974&datum=2015-03-18&naslov=Premijerov> ;
<http://www.pretraga.crps.me/Home/PrikaziSlog/3>,
<http://www.pretraga.crps.me/Home/PrikaziSlog/1> ;
<http://www.pretraga.crps.me/Home/PrikaziSlog/1> ;
http://www.monitor.co.me/index.php?option=com_content&view=article&id=4062:mladi-i-lijepi&Itemid=3991

⁴¹ <http://pretraga.crps.me/Home/PrikaziSlog/1> ; <http://www.trianglegc.com> ;
http://www.bloomberg.com/apps/news?pid=newsarchive&sid=adR8hDObY_c4 ;
<http://www.booknoise.net/benotafraid/characters/> ; http://www.pbs.org/pov/thebrooklynconnection/film_description.php ;
<http://www.kuvendikosoves.org/?cid=2,102,758>

⁴² https://www.energy-community.org/portal/page/portal/ENC_HOME/AREAS_OF_WORK/Instruments/Investments/PECI/List_PECI

⁴³ E-mail communication with Green Home, 14.09.2015

⁴⁴ Meeting with EBRD representative, 17 November 2014

Commercial bank financing was identified for 7 greenfield projects. All of these except one involved Erste & Steiermaerkische Bank. Three (Kaludara, Bistrice 1 by the Lim, and Crnja) are in protected areas although it is not clear whether the financing has been signed yet.⁴⁵ 7 of the projects are co-financed by Prva Banka, known for its close connections to the ruling Djukanovic family, with Aco Djukanovic, the Premier's brother, as the largest shareholder.⁴⁶ 8 of them are also co-financed by the national development fund (Investiciono-razvojni fond Crne Gore A.D. (IRF)).

A new cause for concern is the IRF's new EUR 55 million project to finance SHPPs set up by the IRF in co-operation with GIEK, the Norwegian credit export agency, which has recently been exposed by anti-corruption NGO MANS.⁴⁷

3.9 Serbia

As noted above, the research was not able to capture the majority of new Serbian projects, but of the 88 screened, 57 are greenfield and 34 of these are in protected areas.

Five of the greenfield projects have entered operation in the last ten years, three are under construction and 46 are planned and potential (3 are unclear).

Project sponsors have been identified in 35 greenfield cases. Of these, 10 make up the Ibar river cascade which is to be carried out by Ibarske hidroelektrane d.o.o., 51% owned by Italy's SECI Energia S.p.A., and 49% Elektroprivreda Srbije (EPS). In spite of a flurry of political agreements between Serbia, Italy and other Western Balkan countries a few years ago which were heralded as a great opportunity to earn money by exporting electricity at very high prices, there is not much progress with this project so far. Another project with Italian involvement is Lusia and Partners's series of Kolovrat and five more hydropower plants on the Lim.

Another notable project sponsor is British Virgin Islands-registered Renewable Energy Ventures (REV d.o.o.), owned by Canada's Reservoir Capital Corporation (also involved in projects on the Cehotina in Bosnia and Herzegovina and on the Lim in Montenegro). Unlike in the Lim case, however, the company, which has its background in the mining sector rather than hydropower plants, has not hesitated to push the project forward, undeterred by local resistance or having its environmental permit quashed by a court.⁴⁸

Finance for greenfield plants has been identified in 14 projects. Of these 14, five have received financing from the EBRD. None of them are in protected areas. Four small projects are financed from commercial banks (3 by Erste and one by Unicredit through an EBRD credit line). Since 2013, the EIB has supported the construction of nine SHPPs in Serbia with over EUR 12 million through credit lines to Erste Bank and Intesa

⁴⁵ <http://www.mottmac.rs/projects/crnjahydrodedilligence/>; http://www.gov.me/sjednice_vlade/125 Document 14

⁴⁶ <http://www.prvabankacg.com/o-banci/akcionari-sa-najvecim-brojem-akcija/>

⁴⁷ <http://mans.co.me/anevsite/kreditni-podsticaj-za-premijerovu-rodbinu-kumove-i-prijatelje/>

⁴⁸ For more information on this case in Serbian, see <http://www.kontrapress.com/clanak.php?rub=GRADovanje&url=Konacno-resenje-o-Brodarevu>

Sanpaolo Bank.⁴⁹ The remainder of projects identified are financed by the project sponsor's own resources.

3.10 Slovenia

In total 102 hydro projects were screened in Slovenia. The number of greenfield plants (35) was around the same as the number of the existing plants and rehabilitations. Out of the greenfield projects 23 were planned or had a concessionaire. Seven have been commissioned in the past 10 years. A project sponsor or investor was identified for 32 greenfield projects.

A particular feature of Slovenia is that the majority of planned projects are promoted by the state-owned Holding Slovenske elektrarne (HSE) d.o.o. or its subsidiaries such as Hidroelektrarne na spodnji Savi (HESS), Soske elektrarne Nova Gorica (SENG) d.o.o and Dravske elektrarne Maribor (DEM).

The major development efforts are concentrated on the exploitation of the Sava river. HSE is an active promoter of large-scale hydros on the Middle and Lower Sava. Ten greenfield plants are in the planning phase for Middle Sava reaching from 15 MW to over 60 MW in capacity each including Tacen, Gameljne, Sentjakob, Zalog, Jevnica, Kresnice, Ponovice, Renke, Trbovlje and Suhadol⁵⁰. Three greenfield plants have entered operation on the Middle Sava, two are in the planning stage.

Unlike in the other countries, the EIB is the most active MDB in the hydropower sector in Slovenia, having financed the 39 MW Krsko, 41 MW Brezice and 42 MW Blanca all on the Lower Sava. The EIB has also financed reconstruction of plants via financial intermediaries, Unicredit Slovenia and the Slovene export credit agency.

Out of the greenfield projects, 21 are located in protected areas. Project sponsors were identified for 18 of them. The research did not come up with any public finance or commercial source of financing for these plants.

⁴⁹ <http://www.eib.org/projects/pipeline/2011/20110350.htm> ;
<http://www.eib.org/infocentre/press/releases/all/2013/2013-101-eib-and-intesa-sanpaolo-lend-over-eur-650-million-for-smes-renewable-energy-and-the-environment-social-housing-and-student-loans.htm>

⁵⁰ <http://www.gen-energija.si/eng/investments-and-development/middle-sava-he-power-plants>

3 Conclusions and recommendations

Of the 1355 greenfield plants identified, 994 are not yet under construction or in operation. This means that there is still much that can be done to prevent damage by hydropower projects in unsuitable locations across southeast Europe.

As well as legislative changes and enforcement of existing legislation, one of the keys to preventing more damage is to change the practices of the banks and companies in the projects. This research has sought, to the extent possible, to identify them.

Overall, the most prominent financier of greenfield hydropower projects in southeast Europe, including in protected areas, is the EBRD with at least 51 plants directly financed, of which 21 are in protected areas. In addition, the EBRD has provided EUR 14 million for 8 plants in Croatia, Bosnia and Herzegovina and Macedonia through financial intermediaries, which cannot be traced to specific projects. The EIB has provided the largest amount of direct financing by volume – EUR 437 million for specific projects plus EUR 22 million more for 19 unidentified small hydropower plants through commercial banks.

The IFC is the second most active MDB in terms of number of plants, with 22. Altogether, multilateral development banks have provided at least EUR 818 million for greenfield hydropower development in the region. The real figure is most likely larger but not all projects are known as some are financed via financial intermediaries which do not often disclose the projects they finance. Western banks and companies like to think they raise standards when working in countries with a weak rule of law and inadequate nature protection, but such claims look quite thin when considering that the MDBs alone have provided financing for no less than 30 projects in or impacting on protected areas in the region and are planning several more.

It is likely that commercial banks overall finance a much greater number of greenfield projects than MDBs. So far it has been possible to trace financing of 39 greenfield projects, but given most commercial banks' lack of transparency about financing, there likely to be many more. What is clear is that Erste and Steiermaerkische Bank from Austria is active in the sector and in Montenegro appears to be financing several plants sponsored by companies with close connections to the ruling family, including three in protected areas.

Of other public funding sources, KfW has so far been the most active, backing three projects in protected areas in Macedonia, plus the planned Vrilo project in Bosnia and Herzegovina in a Ramsar site, in addition to four more projects outside of protected areas.

The Norwegian export credit agency, GIEK, has not been confirmed to have backed any projects so far, but it has apparently agreed to provide money for a joint EUR 55 million fund with the Montenegrin Investment and Development Fund (IRF) to finance small hydropower projects.

The companies developing hydropower projects, which in some cases also provide part of the financing for the projects, range from the large traditional state-owned companies to small companies with unknown owners. In Montenegro it can be demonstrated that several of the smaller companies have links to the ruling party, and it is unclear whether this trend is more present in Montenegro than other countries or whether it is just easier to find out about it.

There are relatively few companies which are active in several countries, but Austria's Energy Eastern Europe Hydro Power GmbH comes into this category, as does the Kelag group and its Slovene subsidiary Interenergo. Both of these companies are involved in projects in protected areas.

Inappropriate development of hydropower in southeast Europe is already attracting significant opposition, and unless serious action is taken this is only likely to intensify. Bulgaria has already suffered from a backlash against small hydropower plants due to environmental damage and a perception that high feed-in tariffs were going to politically well-connected people. In Albania a debate has started on a potential moratorium on small hydropower plant development. Such controversy is likely to spread to the rest of the region unless action is taken to stop unsuitable projects being developed at unsuitable locations.



The Mala Reka river in the Mavrovo National Park where the EBRD has approved financing for the planned Boskov Most hydropower plant. © Gabriel Schwaderer

Against this background, the EU, which sees itself as the champion of renewable energy, has an important role to play. As well as keeping the financial institutions in which it has decision-making power (the EBRD and EIB) under closer watch and regulating the activities of EU companies working outside the EU, it needs to take a more active role to promote the adoption and implementation of EU nature protection legislation in the accession countries. This can be done either bi-laterally through the accession process or through the Energy Community.

It is in all our interests that hydropower – as any other form of infrastructure – is prevented from running rampant, as it has the potential to cause a backlash against the whole transition towards an energy-efficient renewable-energy based society.

Recommendations

Multilateral development banks need to:

- Adopt and/or better implement hydropower sustainability criteria and establish clear no-go zones in protected areas and rivers of outstanding quality.
- Publish project information about hydropower projects (and others with a clear environmental impact) which are financed through financial intermediaries.
- Pay increased attention to the issue of corruption and politically exposed persons' involvement in hydropower plant projects and their benefitting from feed-in tariffs.

Commercial banks, export credit agencies and national development banks need to:

- Systematically disclose information about which infrastructure projects, including hydropower, they have financed and are planning to finance and what environmental standards are being used to assess them.
- If not having done so already, adopt hydropower sustainability criteria and establish clear no-go zones in protected areas and rivers of outstanding quality.
- Pay increased attention to the issue of corruption and politically exposed persons' involvement in hydropower plant projects and their benefitting from feed-in tariffs.

The **national governments** of the countries in the region need to:

- Where not done already, transpose and implement the Birds and Habitats Directives and Water Framework Directive.
- Establish clear no-go zones in protected areas and rivers of outstanding quality.
- Publish up-to-date project information about hydropower plants in a central registry.

The **European Commission** needs to:

- Provide increased assistance to countries in transposing and implementing the Birds and Habitats Directives and Water Framework Directive.

- Continue to pay attention to the issue of inappropriate hydropower development (both in terms of environment and corruption) during its annual assessments of accession countries' progress towards the EU.

The European Commission and Energy Community need to:

- Consider how elements of the Birds and Habitats Directives and Water Framework Directive could be adapted to the Energy Community Treaty to reduce the negative impact of hydropower projects.
- Include the updated 2014 version of the Environmental Impact Assessment Directive in the Energy Community acquis as well as the Directive on Strategic Environmental Impact assessment.
- Pay increased attention to the quality of Strategic Environmental Assessments and Environmental Impact Assessments and public consultation processes in relation to hydropower projects.

Recommendations for NGOs

- Put more pressure on the EBRD and EIB to disclose all hydropower financing including through financial intermediaries and adopt/better implement sustainability criteria including no-go zones
- Take co-ordinated action to approach commercial banks and ask them to disclose project information and adopt sustainability criteria including no-go zones
- Use the experience from Bulgaria, which is relatively well documented, to prevent harmful development in other countries.
- Work together to refine and update the database created for this project

Annex 1 – Methodology

The research was based on a database provided by EuroNatur and Riverwatch of 937 existing and planned hydropower plants, and on the study by Dr Ulrich Schwarz on hydropower plants in protected areas.⁵¹ The countries covered are Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Aaos river in Greece, Kosovo, Macedonia, Montenegro, Serbia, and Slovenia. For the purpose of this analysis, we used the EuroNatur/Riverwatch database to establish the starting set of projects to be researched. We then used the resources outlined below to compile our own database of hydropower projects.

The plants discovered during the research were added for Albania, Kosovo, Macedonia, Croatia, Bosnia and Herzegovina and Montenegro. However this practice was not continued for the remaining countries after it was found that the Serbian national database of small hydropower projects contained over 800 entries, which would not be possible to examine with the time and resources available, and in any case is being revised currently.

Information resource overview:

European Bank for Reconstruction and Development (EBRD)

- Online overview of Cumulative EBRD Investments as of December 31, 2014⁵²;
- Online database of EBRD Project Summary Documents⁵³;
- Western Balkans Sustainable Energy Direct Financing Facility (WeBSEDF) - an overview of HPP projects supported by the WeBSEDF provided by e-mail upon request on 20.7.2015; the names of HPPs were disclosed
- Western Balkans Sustainable Energy Financing Facility (WeBSEFF) – an aggregate data overview of HPP projects supported by the WeBSEFF II provided by e-mail upon request on 26.8.2015; the names of HPPs were not disclosed due to commercial confidentiality
- Western Balkans Investment Framework website⁵⁴

⁵¹ Schwarz, U., 2015. Hydropower Projects in Protected Areas in the Balkan Region. RiverWatch & EuroNatur, 34 pp.

⁵² <http://www.ebrd.com/documents/comms-and-bis/ebrd-investments-19912014.xlsx>

⁵³ <http://www.ebrd.com/work-with-us/project-finance/project-summary-documents.html>

⁵⁴ <http://www.wbif.eu>

European Investment Bank (EIB)

- Online database of EIB finance contracts signed⁵⁵;
- An overview of EIB operations signed between 1990 and 2014 for hydropower (incl. pumped power stations) in southeast Europe provided by e-mail upon request on 3.6.2015; the names of the HPPs were disclosed
- An aggregate data overview of EIB hydropower operations conducted through financial intermediaries in southeast Europe provided by e-mail upon request on 20.7.2015; the names of HPPs were not disclosed due to commercial confidentiality
- Western Balkans Investment Framework website⁵⁶

Green Growth Fund (GGF)

- Online GGF project portfolio⁵⁷;
- Phone conversation with Lloyd Stevens, Investment Manager GGF, Finance in Motion on 2.6.2015

International Finance Corporation (IFC)

- Online IFC projects database⁵⁸;
- Information provided by e-mail upon request on 14.10.2015

KfW banking group (KfW)

- Overview of KfW hydropower operations in southeast Europe provided by e-mail upon request on 2.11.2015; the names of the HPPs were disclosed

Western Balkans Investment Framework (WBIF)

- Online database of WBIF projects⁵⁹;
- An overview of HPP projects supported by WBIF technical assistance grants provided by the European Commission Directorate-General for Neighbourhood and Enlargement Negotiations Information on 22.4.2015

⁵⁵ <http://www.eib.org/projects/loans/list/index.htm>

⁵⁶ <http://www.wbif.eu>

⁵⁷ <http://www.ggf.lu/finance-energy-in-eastern-europe/investments/albania/>

⁵⁸ [http://ifcextapps.ifc.org/ifcext/spiwebsite1.nsf/\\$\\$Search?openform](http://ifcextapps.ifc.org/ifcext/spiwebsite1.nsf/$$Search?openform)

⁵⁹ <https://www.wbif.eu/Projects?by=country>

Commercial banks:

Albania

- Credins Bank – full information provided by e-mail upon request on 9.6.2015; the names of the HPPs were disclosed
- Intesa SanPaolo Bank – information provided by e-mail upon request on 15.4.2015
- Veneto Banka – e-mail information request from 14.4.2015 left unanswered
- Union Bank – information provided by e-mail upon request on 14.4.2015

Bosnia and Herzegovina

- UniCredit Bank - e-mail information request from 16.4.2015 left unanswered
- Raiffeisen Bank - e-mail information request from 16.4.2015 left unanswered
- Intesa SanPaolo Bank- e-mail information request from 16.4.2015 left unanswered

Croatia

- Erste Bank – e-mail information request from 29.4.2015 left unanswered
- Privredna Banka – e-mail information request from 29.4.2015 left unanswered
- Zagrebacka Banka – e-mail information request from 29.4.2015 left unanswered

Macedonia

- Ohridska Banka – e-mail information request from 29.4.2015 left unanswered
- NLB Tutunska Banka – aggregate figures provided by e-mail upon request on 30.4.2015; the names of the HPPs were not disclosed due to commercial confidentiality

Serbia

- Banca Intesa Beograd – e-mail information request from 29.4.2015 left unanswered
- UniCredit Bank - e-mail information request from 29.4.2015 left unanswered
- Societe Generale - e-mail information request from 29.4.2015 left unanswered

Other primary sources of information:

- Government decisions

- Government agencies reports
- National energy regulators reports
- International energy institutions reports (Energy Community, Clean Development Mechanism)
- Annual operational reports of companies and financing institutions
- Financial statements of companies and financing institutions
- Companies' records in national business registries
- Other materials produced by companies and financing institutions (technical reports, press releases, presentations)

Secondary sources of information:

- Media coverage
- Social networks (LinkedIn and Facebook profiles)
- Materials produced by Non-profit organisations

Database setup

The database is set up as follows:

Country name

(Hidden column: Bis – Identifier of plant by country – this uses EuroNatur/Riverwatch's original annotations for the plants that were in the original database. For plants that were added later only a 2-3 country signifier is used. Where a blank space appears, this signifies a row which has been created to accommodate multiple sources of financing for the same project rather than a separate project)

Hydropower plant name – where it could be traced. This also includes alternative spellings or names.

River – where it could be traced.

Basin – where it could be easily traced.

Community/District – In many cases this is the administrative district in which the project is situated, while for cases where it was not possible to trace easily it was left blank or a nearby settlement was added.

Type:

Existing/Rehabilitation/Conversion/Greenfield/Cancelled/Duplicate/Unclear –

The EuroNatur/Riverwatch database included both plants which are already existing and new planned ones. Given the emphasis on financing plants which damage protected areas, plants which have existed for many years are not particularly relevant, as both environmental standards and financing sources have changed. However it is very rare to get an insight into a project's financing before it is built, particularly for small projects, therefore it was necessary to include some plants which have already been built. Considering the countries studied and the timing of their hydropower booms, we decided on 2005 as the cut-off date. Therefore everything which was already operating before 2005 is classed as 'existing' or 'rehabilitation' if they have been subject to rehabilitation projects in recent years, while new plants either put into operation since then or still planned or under construction are classed as 'greenfield'. The only post-2005 plants not classed as greenfield are those few projects which are obviously a conversion from an existing reservoir, weir or mill and that are not considered to be in danger of creating environmental damage. These are labelled 'conversion'. 'Cancelled' plants are those very small number of plants where a publicly available decision has been taken not to build them, while 'duplicate' projects are those for which it was estimated that the same plant had already been represented in the database, by either the same or a different name.

Name of the protected area – Added where easily available

Protection status – Taken mostly from Schwarz (2015). However in some cases additional information came to light after the study was published and was incorporated, either from Dr Schwarz or from groups working on particular cases in the countries. Dr Schwarz's distinguishes the following protection areas:

1. National Parks based on national and international data
2. Ramsar Sites, Biosphere Reserves and World Heritage Sites (Nature); in most cases, these international categories are protected as nature reserves or national parks under national law
3. Natura 2000 Network for EU countries (SI, HR, BG, GR)
4. Strictly protected areas in the non-EU countries; mainly comprised of smaller areas (nature reserves) but also of "nature parks" formerly designated by the Former Republic of Yugoslavia (FRY) in BA, RS, ME, KV and MK with strict protection (not to be confused with nature parks in western European countries where they don't have such a strict protection status). Furthermore, EMERALD 1 areas in non-EU countries were included in this category.
5. Other protected areas such as landscape protection, natural monuments, official enlargement proposals and other officially designated areas with less protection

Inside/Outside protected area – Schwarz (2015) covered plants which are in protected areas. However in a few additional cases it was clear from the environmental impact study or simply the location of the plant that it would have an impact on a protected area despite not being inside it. This aspect was not covered systematically and is certainly underestimated.

Existing capacity – This is the capacity of any plant which is identified to have entered operation by the time of writing.

Predicted capacity – This is the capacity of any plant which is planned or under construction. In a few cases of rehabilitation additional capacity was added in this column.

Project sponsor – This is the company which directly manages the project. In many cases it is a small limited company set up only for this purpose.

Investor – This is the larger company or companies which own the project sponsor company or in case there is not yet any project sponsor, the company or government which is developing the project.

Country – This is the country where the owner of the project sponsor is based, if found.

Ownership – In some cases this denotes percentage of ownership while in others it shows a further layer of ownership of the investor.

Public/Private – if the project is owned or managed by a private company this is 'private' or if the company is owned by the state or local authority it is 'public'. 'Public-private' denotes projects where there is joint public-private ownership of the project sponsor.

No. of hydros in cascade – often concessions are given out for several plants at a time. Where this was obviously the case, the number of plants in the concession is marked.

Date/length/end of concession – Self-explanatory

Subcontractor – This was added in only a few cases. It usually does not influence the financing of projects but there are some exceptions: sometimes projects receive export credit agency financing from the country of origin of the equipment supplier (eg. If there are turbines from Norway, GIEK may provide an an export credit guarantee).

Development phase: potential / planned / offered for investment / concession awarded / under construction / operational<5years / operational 5-10years / operational>10years / cancelled / unclear

- Potential projects are those which have not been cancelled but for which no obvious activity has been going on during the last few years.
- Planned projects are those where some activity seems to be going on but they have not been offered for concession and are not yet under construction.
- Offered for investment means that the project has been subject to some kind of process for offering a concession or finding a strategic investor but that no concession has been awarded yet.
- Concession awarded means that a concession has been awarded and not cancelled, or if it has been cancelled it has been awarded to a new project sponsor. Those which have been cancelled are put into the planned or potential categories depending on whether the project looks active.

Date when put into operation – for projects which are already in operation

Total project costs – where available, the overall construction costs of the project

Financed by own resources – in cases where it is clear which proportion of financing comes from within the project company.

MDB finance – MDB name – finance provided by Multilateral Development Banks. Does not include national development banks such as KfW.

Board date – date when the financing was approved by the bank's board of Directors, where known.

Status – Planned / Approved / Signed / Invested / Completed / Cancelled

- Planned financing has not been included in most of the calculations for the report as the bank may still decide not to go ahead with the project.
- Approved financing is that for which the bank's board of Directors has approved a loan, while signed financing is that for which a loan contract has been signed. Neither of these guarantees that a project will go ahead as there may be conditions attached to the loan, as in the Ombla case in Croatia. However at this stage the bank has publicly made a commitment to the project and can be held responsible for doing so.

Type - This may take the form of credits (loans), guarantees, equity shares or advisory services for project preparation. Credits may be direct, in which case they are marked 'credit', or through financial intermediaries (commercial banks) in which case they are marked 'financial intermediary'.

Currency – where it is in local currency the original currency is marked and converted to EUR.

Commercial banks – these include commercial banks that provide loans on their own and also those which direct credit lines from MDBs. In the latter case, both the MDB and the commercial bank are marked for the same project. This could create problems for double-counting the amount of financing, however this was avoided by not attempting to quantify the total financing from commercial banks and assigning all the financing to the MDBs, without whom these credit lines would anyway presumably not have existed.

Other public financing – this includes Export Credit Agencies and national development banks, as well as the Western Balkans Investment Framework Fund.

Remarks – Additional information is provided here, such as on cancellation of concessions, background about the companies or controversy surrounding the projects.

Info source – Sources of information on those elements not in the original EuroNatur/Riverwatch database or Schwarz 2015.