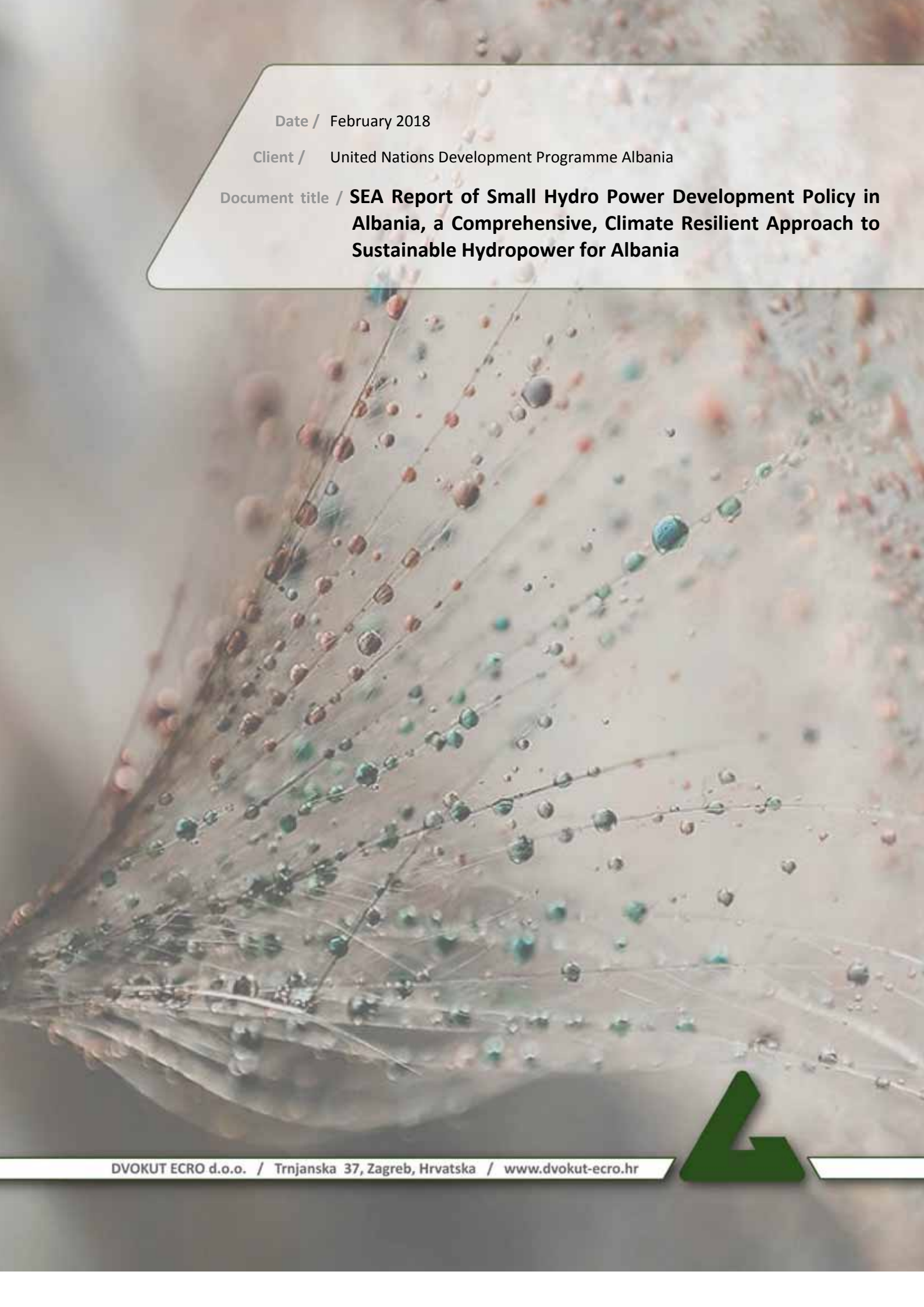

Date / February 2018

Client / United Nations Development Programme Albania

Document title / **SEA Report of Small Hydro Power Development Policy in Albania, a Comprehensive, Climate Resilient Approach to Sustainable Hydropower for Albania**

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Document title:	**SEA Report of Small Hydro Power Development Policy in Albania, a Comprehensive, Climate Resilient Approach to Sustainable Hydropower for Albania**
Version:	**Final**
Date:	**February 7th, 2018**
Sent to:	**UNDP Albania**

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LIST OF ABBREVIATIONS

CoM	Council of Ministers
DCM	Decision of Council of Ministers
ECS	Energy Community Secretariat
EF	environmental flow
EIA	Environmental Impact Assessment
ENA	Emerald Network area
EP	European Parliament
ESA	Energy Strategy for Albania (in draft)
FEC	final energy consumption
GoA	Government of Albania
HPP	hydropower plants
INDC	intended nationally determined contribution
IPS	Integrated Planning System
ktoe	kiloton of oil equivalent
Law on IMWR	Law on integrated management of the water resources
MIE	Ministry of Infrastructure and Energy
MTE	Ministry of Tourism and Environment
NANR	National Agency of Natural Resources
NEA	National Environmental Agency
NGO	non-governmental organization
NREAP	National Renewable Energy Action Plan
NSDI-II	Second National Strategy for Development and Integration
PA	Protected area
RBMP	River Basin Management Plans
RES	renewable energy resources
SEA	Strategic Environmental Assessment
SEFI	State Environmental and Forestry Inspectorate
SHPP	small hydropower plant
TSNWC	Technical Secretariat of National Water Council
UNFCCC	United Nations Framework Convention on Climate Change
WFD	Water Framework Directive
WWTP	waste water treatment plant

A. EXECUTIVE SUMMARY

This executive summary is an overview of key findings of the Strategic Environmental Assessment of Small Hydro Power Development Policy in Albania, a Comprehensive, Climate Resilient Approach to sustainable Hydropower for Albania.

A.1 DEVELOPMENT POLICY OF SMALL HYDRO POWER PLANTS IN ALBANIA

Albania has a central public online register of hydropower plants managed by the National Agency of Natural Resources (NANR) but the information is not complete nor fully updated. The published register lists 524 hydropower plants (HPPs); the figure indicates the number of production units and not the concession agreements which there are about 173. Other publications indicate different numbers. The recent publication of the MIE indicates a figure of 506 HPPs in Albania (concessions). Meanwhile a specific survey study from May 2015 has indicated a figure of about 583 HPPs projects in Albania.

Until 2015, 173 concession contracts were awarded for building 502 small hydropower plants, 104 of which are operational and 75 are under construction. The hydropower potential supply of these 502 SHPPs is about 2,100 MW. **In 2015, 100% of the net public power production in Albania was achieved by hydropower plants (HPP).**

The National Strategy for Integrated Management of Water Resources[1], from June 2017, states that by 2015, 178 concession contracts were signed for the construction of 517 SHPPs (with generation capacity of 2,130 MW), out of which 104 are operational and 75 are being built.

Sector legislation

- Law No.7/2017 "For the renewable energy resources"
- Law No 43/2015 of April 30th, 2015 "On electrical power sector"

Concession legislation

- Law No. 125/2013 "On the concessions and private public partnership" changed with the Law No. 88/2014 The law stipulates the main concession frame in Albania
- DCM No. 575, dated July 10th, 2013 "Rules for evaluation of the concession proposals", amended by DCM 313 dated April 27th, 2016 and appealing also the DCM 576 dated 10 07 2013. This decision determines rules to be followed for all kinds of concessions.
- DCM No. 822 dated October 7th, 2015 "Rules for the construction of new electricity generation plants that are not subject of concession procedure (less than 2 MW)"

Based on the legal framework, there are 2 types of procedures for SHPP project approval which are applied to:

1. SHPP projects that are not subject to concession procedure
2. SHPP projects that are subject to concession procedure

SHPP projects that are not subject to concession procedure are approved through:

- **preliminary approval** that legitimize the project relevance

[1] Version from 16 June 2017, http://www.konsultimipublik.gov.al/Konsultime/Detaje/40

- **final approval** that grants the construction or development permit

SHPP projects that are subject to concession procedure are approved through:

- **pre–concession phase** - PHASE I - Project concept
- **concession procedure-**
  - PHASE II - Proposal for SHPP project (Project identification and tender release)
  - PHASE III - Tender procedure and concession agreement
- **post concession contract award** - Adopting the final project designs

A.1.1 Main findings or conclusions on the Policy Review

SHPP development - The development of SHPP is strongly led by the energy demand and the increase of private investments, backed by financial incentives such as feed in tariffs. Unsolicited proposals approach has attracted small investors often with a lack of capacities for implementing SHPP projects such as; financial resources and know-how, resulting in investment delays, failures and adverse environmental consequences. The current mechanism of SHPP development is not based on integrated and sustainable approach and does not include any risk assessment such as climate change vulnerability. A reliable system for quality verification of environmental information presented in the project proposal is not in place. A cost-effective analysis or a cost-benefit analysis taken into account environmental losses is not performed during the approval of SHPPs so external value losses due to environmental degradation, water scarcity or revenue loss from tourism and fishery are not taken into consideration. Legislation regulating the consent development, either concession form or as additional energy generator, allows for a limited environmental integration thus inducing compliance conflicts with other legislation such as in the area of water and nature protection. Existing mechanism of environmental integration in the SHPP concession procedure is not adequate to guarantee environmental protection and enforcement of environmental legislation.

Planning system - SHPPs are not developed based on a balanced planning system, but led by the energy demand and business opportunities. The development of SHPP sector is promoted and backed by the National Renewable Energy Action Plan (NREAP). The NREAP 2015 – 2020 provides the executive agencies with the vision and targets to support and progress with RES, prioritizing the hydropower capacity increase (including SHPP). The given promotion of hydropower investments is not supported by “check and balance” tools such as water management planning or biodiversity sustainable use. As a matter of fact, the water sector planning instruments such as the Strategy on Integrated Water Resource Management and River Basin Management Plans are not yet in place to influence the development of SHPP. Existing management plans for protected areas or biodiversity action plans either have not been imposed during the SHPP development or were never adopted and implemented by the MTE. The NREAP 2015 – 2020 Plan has not been assessed and scrutinized through the SEA process.

Nature protection - The current SHPP development is not in line with the existing legislation for nature protection in Albania. Many SHPP have been built or are planned (concessions have been awarded) within protected areas, without adequate and effective biodiversity protection norms. The decision making of SHPP development is not based on adequate information due to the lack of biodiversity asset inventories for riparian and related habitats and due to low quality of EIA reports that almost completely lack biodiversity impact assessment. The current development of the SHPP is conflicting with the objectives of biodiversity protection set out in the National Strategic Policy for the Protection of Biodiversity in Albania 2015-2020. This unbalanced development of SHPP is expected to result in adverse consequences such as the loss of habitats and biodiversity species, deforestation, water scarcity and erosion. The current development practice is not in line with several international agreements regarding environmental protection that Albania is a signatory of.

Environmental performance - There is a lack of specific standards for the environmental performance of the HPP development in Albania. The existing environmental protection standards, including the EIA mechanism, are not adequately enforced during the approval, construction and operation of SHPP. The environmental approvals are not achieving effective environmental protection; the set conditions are very general and not based on case by case project characteristics. The project designs and business plans do not include the environmental costs of the SHPP and there is also a lack of rules for environmental liability of SHPP. This gap does not support the allocation of adequate financial budget for environmental issues connected to SHPP projects. Compensating external cost of SHPP (cost to the environment) is expected to be a huge financial burden for the public spending to tackle environmental degradation induced from the SHPP (such as de-forestation, erosion and biodiversity loss). The cumulative impacts of SHPPs in the same cascade are not assessed and considered during the decision-making process.

Institutional coordination - The coordination of institutions with the role and responsibility of natural resources management is not adequate. The water management competencies are fragmented within several institutions; the use of water for energy production has obscured other uses. A consolidated water use database including the SHPP location and status is not established yet. The primary institutions of water management play a minimal role in the SHPP development and a mechanism to monitor the ecological water release is not in place yet. The permitting process (after the concession award) of SHPP is subject to complex procedures and usually is accomplished beyond the deadline set in the concession contract. A system for performance monitoring of SHPP is in early stages, fragmented in several agencies (NANR, NEA, and Water Basin Agencies) and not consolidated yet.

Stakeholder consultation and transparency - Consultations with the stakeholders during concession phases is not undertaken. The current legislation does not enable consulting the local governance and community during the concession or development consent phase. As the matter of fact, several conflicts between SHPP investors and local communities have occurred in recent years. The consultation process starts only during the EIA procedure, but the procedure itself is very formal and not effective enough to influence the project design. No monitoring performance reports for SHPP are published by the developers, NEA or NANR. Such an approach is not in line with the respective national legislation for public consultation during the environmental decision making, Aarhus Convention or Espoo Convention in case of trans-boundary impacts of the SHPP projects.

A.2 SEA OBJECTIVES AND METHODOLOGY

Specific objectives of the SEA process are as follows:

1. Generation of information on environmental baseline relevant for assessment of cumulative impacts of small hydropower plants in Albania.
2. Assessment of impacts from existing and planned small hydropower plants on key environmental issues of interest and provision of recommendations on environmental management of existing SHPPs and future decision-making on the planned SHPPs, including defining of no-go areas.
3. Comparison of identified strategic impacts of small hydropower plants with strategic impacts of different energy supply and generation options in Albania (i.e. import of energy, development of SHPPs, development of large-HPPs, solar and wind energy sources as well as possible generation of electricity from gas-powered thermal power plants) and determination of priority options posing least environmental impacts and risks.
4. Facilitation of consultations on the above issues amongst interested stakeholders, including relevant state authorities, international organizations and donors, developers of SHPPs, and non-governmental organizations (NGOs).

SEA methodology in short was defined by the following steps:

- preparation of the SHPP development in Albania Policy Overview
- SEA baseline preparation, focused on 5 main socio-environmental topics: hydrological, biodiversity (incl. protected areas), landscape and socio-economic characteristics and climate change issue
- field survey of the selected SHPP sample (71 locations for site visit were selected, 51 of which were dedicated to operational/under construction facilities, 20 to planned)
- EIA review and the review of other available project documents of the selected SHPP sample
- impact assessment based on general expected impacts of SHPPs, the UNDP GIS database, the undertaken field survey and the EIA review
- based on the possible impacts, field survey data, EIA review, and policy analysis, recommendation to improve the SHPP development policy in Albania were drafted
- additional analysis of various power supply based on the socio-economic and environmental impacts

A.3 OVERALL CUMULATIVE IMPACTS OF EXISTING AND PLANNED SHPPS

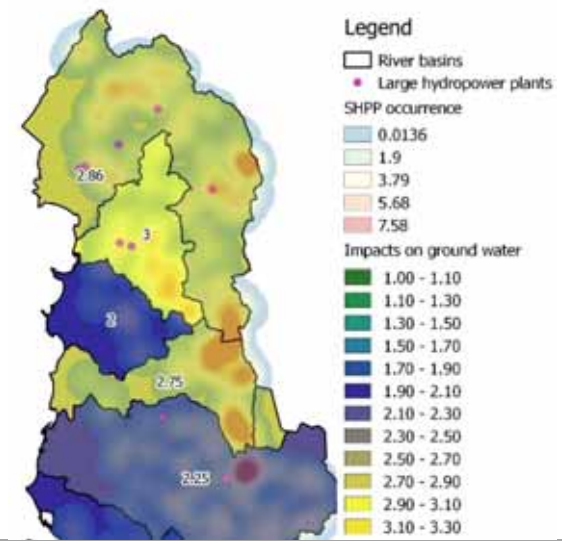
A.3.1 Impacts on groundwater and surface waters

Groundwater recharge

According to field survey results and assessed impacts in EIAs, most of the planned projects have minor cumulative impacts on important areas important for groundwater recharge like in Erzeni-Ishmi basin. Situation is slightly worse in Vjosa and Semani River basins. In Shkumbini and Drini River basins, more projects have significant impacts. Based on the analysis, the worst situation is in the Mati River basin where the results show that SHPP projects can have significant cumulative impacts.

RESULTS

Numbers shown for each basin are average values of grades given to sampled SHPP projects in that basin (scale 1 to 4: 1 – no impact, 4 – greatest impact). Grades were given to SHPP projects in the EIA review based on the descriptions below (right). First, project impact was assessed, then cumulative impact, and the final grade for a SHPP was the lower of the two (final grades were used to calculate the basin average).



project impact grade description	***cumulative impact grade description***
1 – The project does not have any direct or indirect impact on areas important for ground water recharge	*1 – The project does not have any direct or indirect cumulative impact on areas important for ground water recharge*
2 – The project has minor impacts on locally important areas important for ground water recharge	*2 – The project has minor cumulative impacts on locally important areas important for ground water recharge*
3 – The project has significant impact on local areas important for ground water recharge or minor impacts on nationally important areas for ground water recharge	*3 – The project has significant cumulative impact on local areas important for ground water recharge or minor cumulative impacts on nationally important areas for ground water recharge*

	4 – The project has very significant impact on nationally important areas important for ground water recharge	*4 – The project has very significant cumulative impact on nationally important areas important for ground water recharge*

Figure A-1: Impacts on groundwater on basin level (based on the field survey and EIA review – sample of 44 SHPPs)

Given the assessment of impacts on groundwater, which can be significant, the fact that not all SHPP EIAs have considered the project impact on groundwater, and none considered cumulative impacts is quite concerning.

Surface waters

SHPPs can cause changes in river morphology (continuity, variations in the width and depth of the watercourse, changes in structure and substrate of the riverbed and river bank). According to the field survey results, predicted **length of rivers affected** by water deviation (from intake point to the powerhouse and release point) is the highest for Shkumbini basin, where the average of river affected is 3,83 km, closely followed Vjosa basin with 3,73 km. situation is somewhat better in Erzeni – Ishmi basin with average of 3,4 km, Semani basin (3,01 km) and Drini basin (2,71 km), while Mati on average showed on average the least length of river affected 2,05 km.

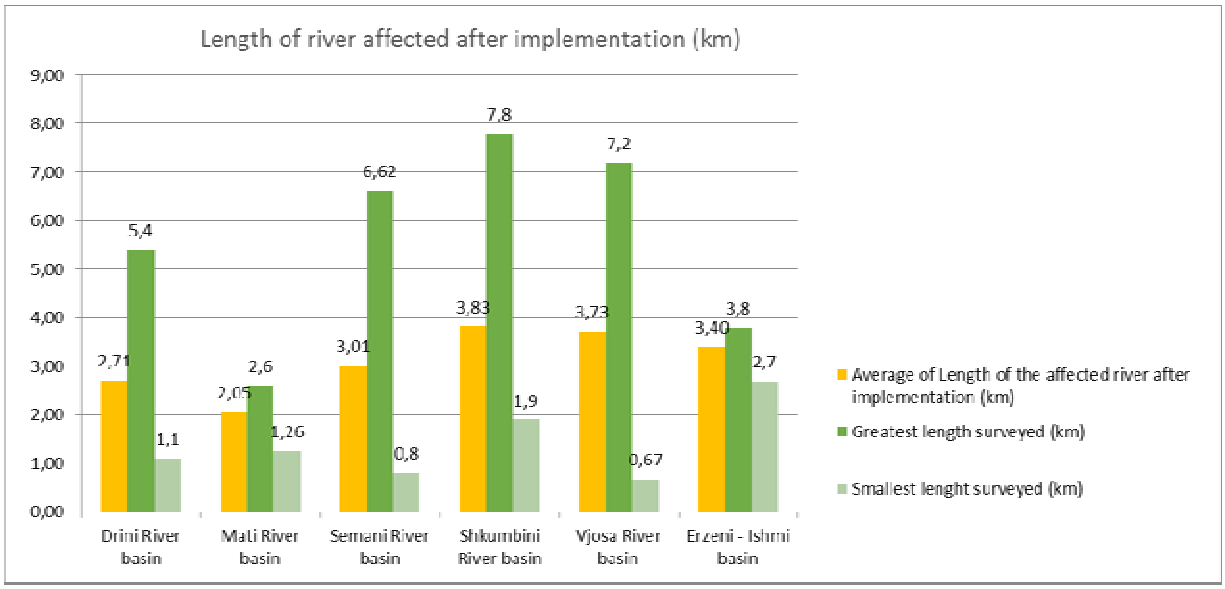


Figure A-2: Average length of river affected after construction in river basins (based on a sample of 71 SHPPs)

Even though a single SHPP might impact lengths of rivers shorter than a kilometre; the real cumulative impact arises from cascades. Cascade systems have major impact on rivers hydromorphology and they can cause significant changes in river flow and water level. Situations have been detected during the field survey where one SHPP intake starts only a few meters after the discharge point of an upstream SHPP. This situation is potentially detrimental if environmental flows are not met.

Additionally, even if SHPPs are not planned as a cascade system it is likely that they are situated on a river that has built / planned other SHPPs upstream, downstream or on its tributaries. Based on the field survey this is the situation with almost 82% of the projects.

The survey included the **ecological state assessment** for rivers on which SHPP projects are located. The assessment was performed based on the field survey and EIA review data as a measure of the level of human impact on the rivers. Given the data gaps, this assessment could not be performed in complete congruence with the WFD. So, in determining the ecological status of rivers, a simplified approach was implemented using river hydromorphology changes and exposure to anthropogenic pollution assessments. Detected hydromorphology changes (not related to the specific SHPP that was surveyed) were assessed as rivers being mostly minimally to moderately modified. Severe changes were detected in Erzeni – Ishmi basin, which is probably related to significant population density in the basin. It was established that most of the rivers on which surveyed SHPPs are located are polluted, even though minimally. Higher levels of pollution were detected in Mati basin, Semani and Erzeni-Ishmi basin, which is congruent with the baseline. Based on the two assessments, according to the following matrix ecological status was evaluated.

		anthropogenic pollution		
		MINIMAL	MODERATE	SIGNIFICANT
hydromorphology modification	MINIMAL	A	B	C
	MODERATE	B	B	C
	SIGNIFICANT	C	C	C

C	**B**	**A**
Extensively modified rivers (poor and bad ES)	Moderately modified rives (moderate ES)	Near-natural rivers (high and good ES)

The field survey showed that most of the assessed rivers have high and good ecological status (near natural rivers), except in Erzeni – Ishmi river basin (Figure A-3). However, a number of SHPP projects are located on rivers that already have a reduced ecological status (moderate), and their construction will not assist achieving high and good ecological status.

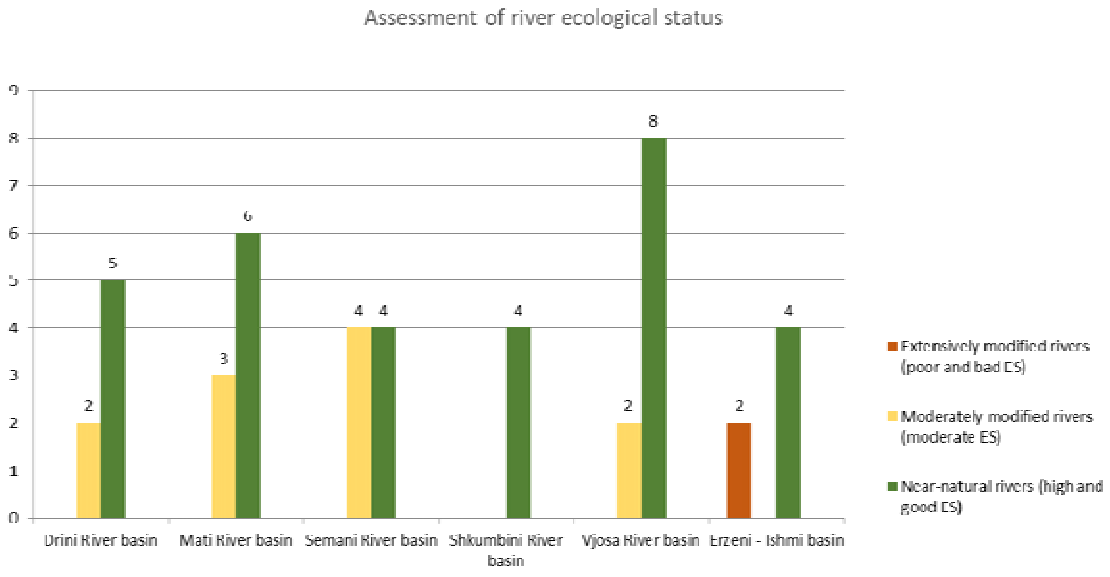
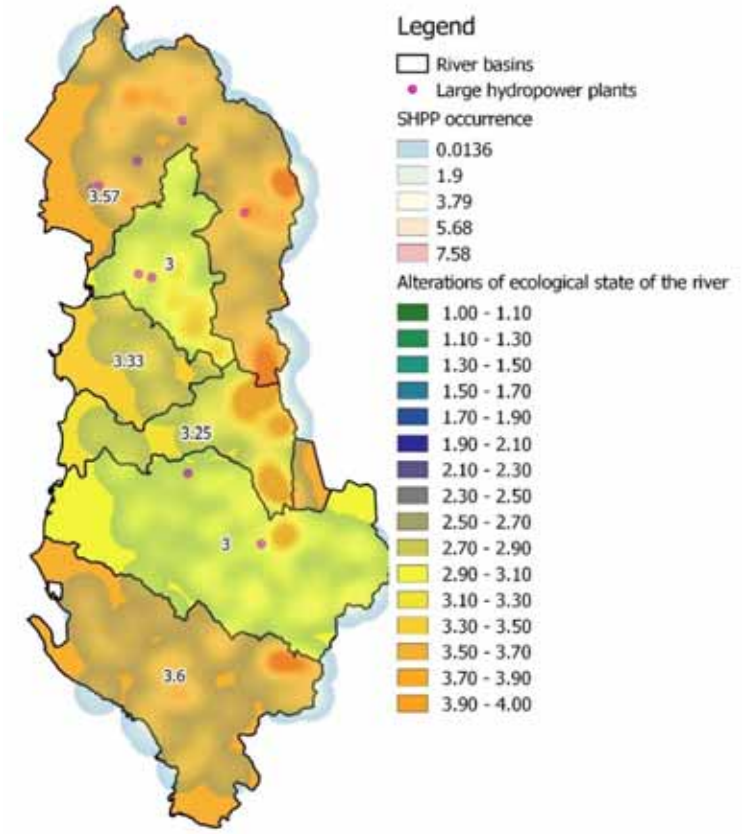


Figure A-3: Number of surveyed SHPP projects and assessment of their river ecological status (based on a sample of 44 projects)

According to field survey results and assessed impacts in EIAs, SHPP projects on average have significant cumulative impacts on rivers with moderate or good ecological status or minor cumulative impact on rivers with high and good ecological status, or even very significant cumulative adverse impacts on a river with high or good ecological status.

RESULTS

Numbers shown for each basin are average values of grades given to sampled SHPP projects in that basin (scale 1 to 4: 1 – no impact, 4 – greatest impact). Grades were given to SHPP projects in the EIA review based on the descriptions below (right). First, project impact was assessed, then cumulative impact, and the final grade for a SHPP was the lower of the two (final grades were used to calculate the basin average)[2].



project impact grade description	***cumulative impact grade description***
1 – The project does not have significant impacts on a river with high, good or moderate ecological status	*1 – The project does not have significant cumulative impacts on a river with high, good or moderate ecological status*
2 – The project has significant adverse impacts on a river with poor or moderate ecological status or minor adverse impact on a river with moderate ecological status	*2 – The project has significant cumulative adverse impacts on a river with poor or moderate ecological status or minor adverse cumulative impact on a river with moderate ecological status*
3 – The project has significant impacts on a river with moderate or good ecological status or minor impact on rivers with high and good ecological status	*3 – The project has significant cumulative impacts on a river with moderate or good ecological status or minor cumulative impact on rivers with high and good ecological status*
4 – The project has very significant adverse impacts on a river with high or good ecological status	*4 – The project has very significant cumulative adverse impacts on a river with high or good ecological status*

Figure A-4: Impact on river ecological status on basin level (based on the field survey and EIA review – sample of 44 SHPPs)

Water use

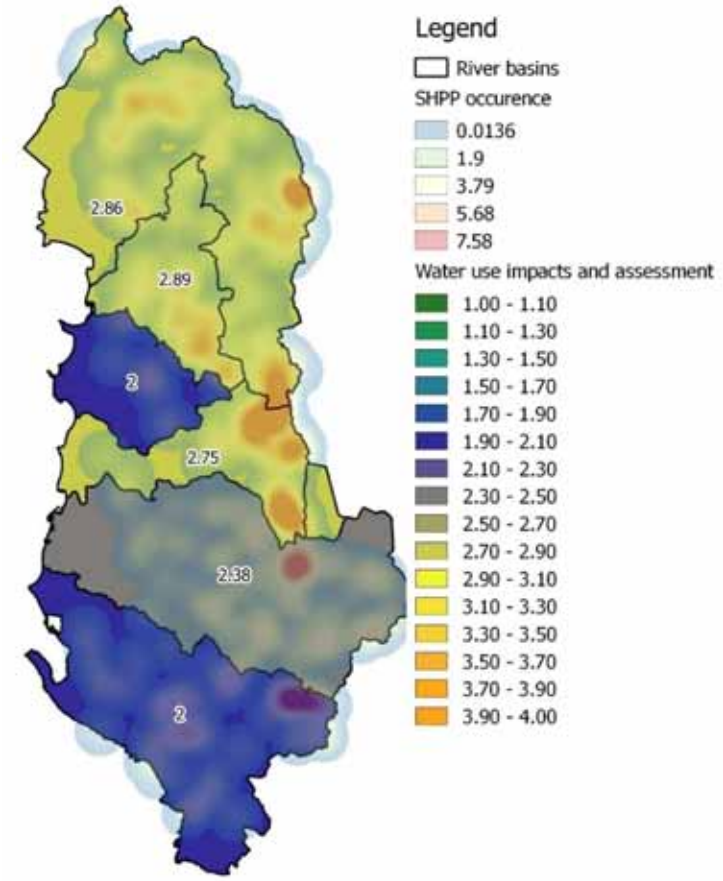
SHPP projects can affect irrigation process and potable water usage. According to the field survey and EIA review, current negative impacts on water use, such as irrigation, are negligible or insignificant, all the way to significant. On average, SHPP projects in Shkumbini, Mati and Drini River

[2] More detail on issues considered, and grading, can be seen in the Annex 2 of the SEA – EIA review questionnaire template.

basins have a more notable negative impact on water use than in other basins. Additionally, it was also detected that EIAs did not always consider current and future water use needs. Given the number of irrigation channels in project areas, and since on each river usually more SHPPs is situated, it is even more concerning that possible cumulative impacts on water use are not taken into account in project EIAs

RESULTS

Numbers shown for each basin are average values of grades given to sampled SHPP projects in that basin (scale 1 to 4: 1 – no impact, 4 – greatest impact). Grades were given to SHPP projects in the EIA review based on the descriptions below (right)[3].



project impact grade description

1 – EIA correctly presented current and future water use needs. Impacts were correctly assessed. Impacts on water use are negligible.

2- EIA did not correctly present current and future water use needs and impacts were not correctly assessed. However, impacts on water use are negligible / insignificant.

3 - EIA correctly presented current and future water use needs. Impacts were correctly assessed. Impacts on water use are significant.

4 - EIA did not correctly present current and future water use needs and impacts were not correctly assessed. Impacts on water use are significant.

Figure A-5: Average impact of SHPPs on water usage on basin level (based on the field survey and EIA review – sample of 44 SHPPs)

A.3.2 Impacts on biodiversity and protected areas

As part of the field survey, value of rivers for ichthyofauna on which SHPPs are situated was assessed (Figure A-6). The results show that most of the rivers on which SHPP projects are situated are important for ichthyofauna. Given that most SHPP projects include weir or dam construction it is

[3] More detail on issues considered, and grading, can be seen in the Annex 2 of the SEA – EIA review questionnaire template.

likely that they can have a significant cumulative negative impact on fish fauna if adequate measures are not taken. Nowadays, it is standard practice to ensure that these objects are passable for fish by constructing fish ladders/passages. The survey has shown that most SHPP projects do not have such facilities (Figure A-7), thus having a strong cumulative negative impact on the ichthyofauna of Albania. This situation is likely to be party caused by the fact that in almost 41 % of the EIAs reviewed, impacts on fish population were not taken into account. The gravity of the situation on basin level is depicted in Figure A-8.

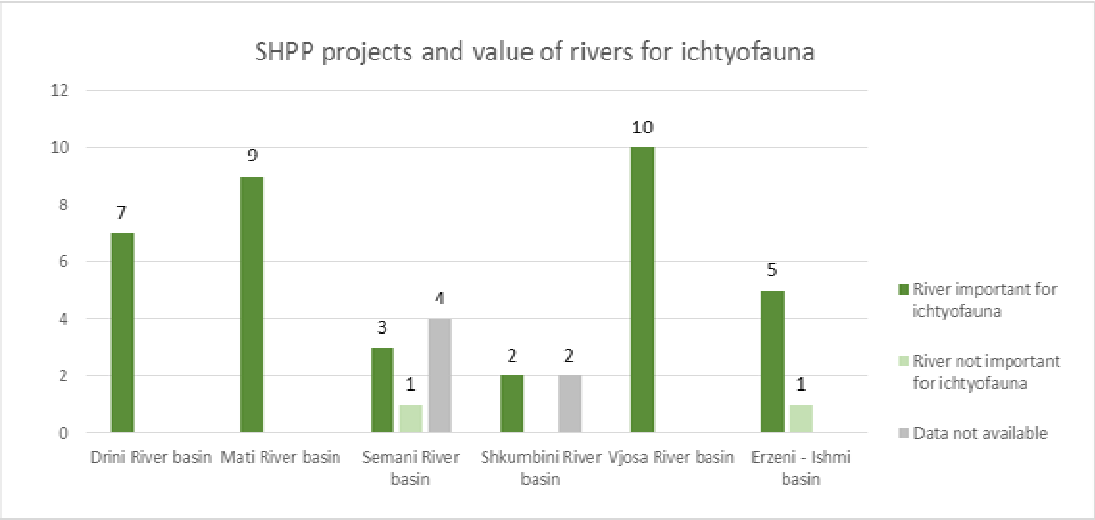


Figure A-6: Assessment of river value for ichthyofauna and number of SHPP projects located on them (based on a sample of 44 surveyed SHPPs)

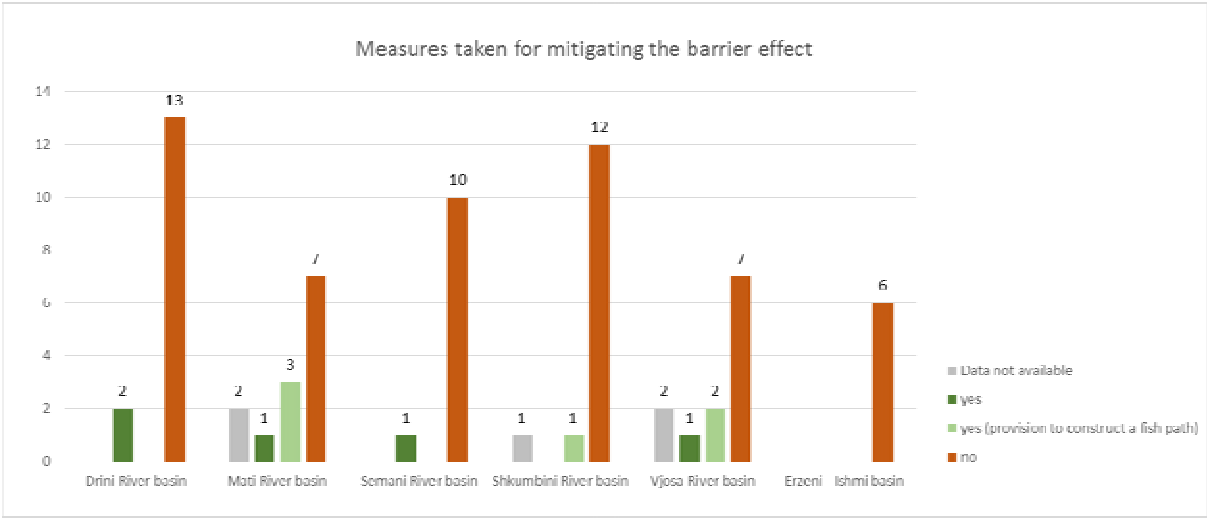
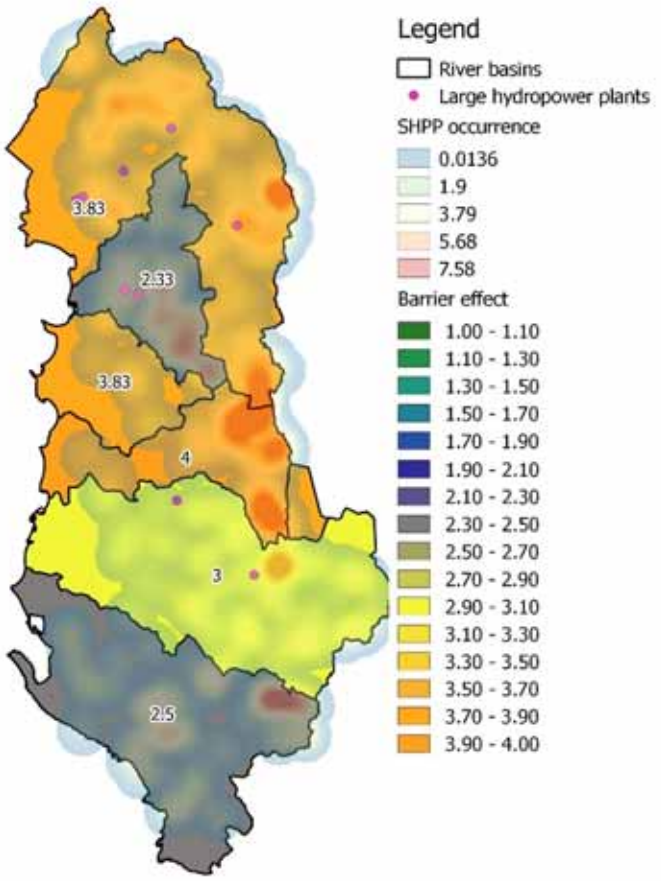


Figure A-7: Applied / planned measures for mitigating the barrier effect (based on a sample of 71 surveyed SHPPs)

RESULTS

Numbers shown for each basin are average values of grades given to sampled SHPP projects in that basin (scale 1 to 4: 1 – no impact, 4 – greatest impact). Grades were given to SHPP projects in the EIA review based on the matrix below. First, project impact on vulnerable species was assessed, then on endangered species, followed by impact on critically endangered. The final grade for a SHPP was the lower of the three (final grades were used to calculate the basin average)[4].



GRADING MATRIX

		Fish species		
		vulnerable	endangered	critically endangered
Impact severity	Minor restriction to fish migration	**1**	**1**	**1**
	Significant restriction to fish migration (e.g. project does not include adequate fish path)	**2**	**3**	**4**

Figure A-8: Analysis of barrier effect on ichthyofauna (based on the field survey and EIA review – sample of 44 SHPPs)

[4] More detail on issues considered, and grading, can be seen in the Annex 2 of the SEA – EIA review questionnaire template.

Additionally, to the barrier effect, SHPPs have cumulative negative impacts on riverine biota through **changes in water flow levels**. These are important not only to protect the downstream fauna and aquatic habitats, but also to support habitats along the river banks. Setting the **environmental flow** is therefore a very important part of SHPP project preparation. Environmental flow was set in most of EIAs or environmental permits reviewed (Figure A-9).

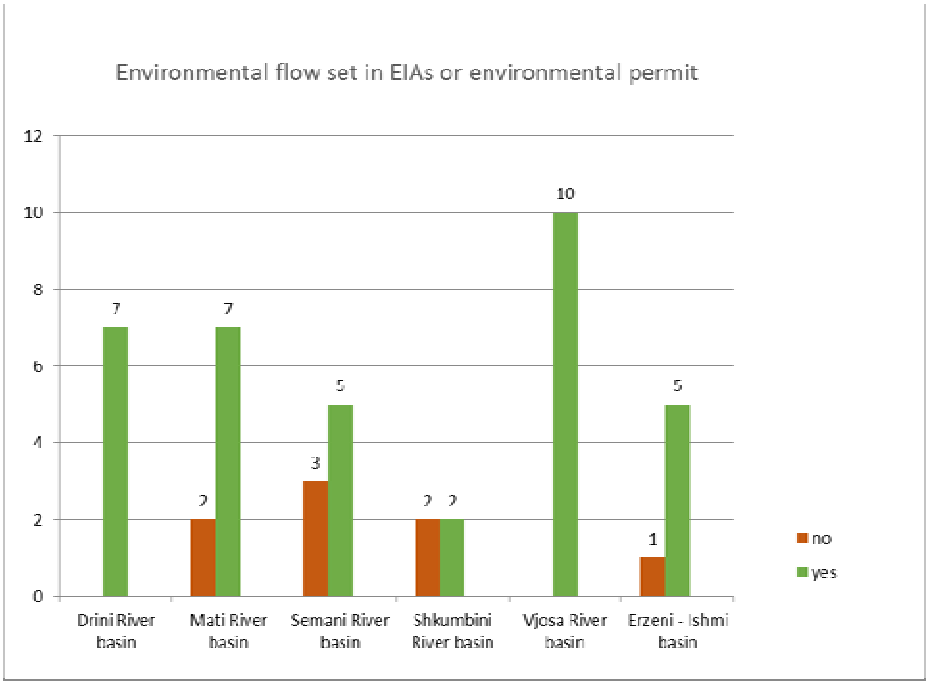


Figure A-9: Environmental flow set in EIAs or environmental permits (based on a sample of 44 reviewed SHPP projects)

Different approaches were applied to determination of ecological flow of reviewed SHPPs. Minimal river flow was used to set environmental flow for 25% of the reviewed projects. Given the mostly mountainous topography, headwaters on which SHPPs are located are torrential in their nature, which means and that their velocity decreases when they transition into plains and finally disperse into wetlands and lagoons located along the coast, and in general, have an uneven seasonal distribution, meaning that during the dry season most of rivers dry up. This is why in almost 23% of reviewed cases; water is not to be abstracted during the summer (100% of the summer river flow). This also means that the minimal river flow, with a set value for the entire year, is not the best approach to determining environmental flows. Based on the Law on Integrated Management of Water Resources, no 111/2012, which was prepared based on the Water Framework Directive (200/60/EC), Article 39, the environmental flow cannot be smaller than the flow present during 355 days in a year (Q355), which was the method used for only 13,6% of reviewed projects.

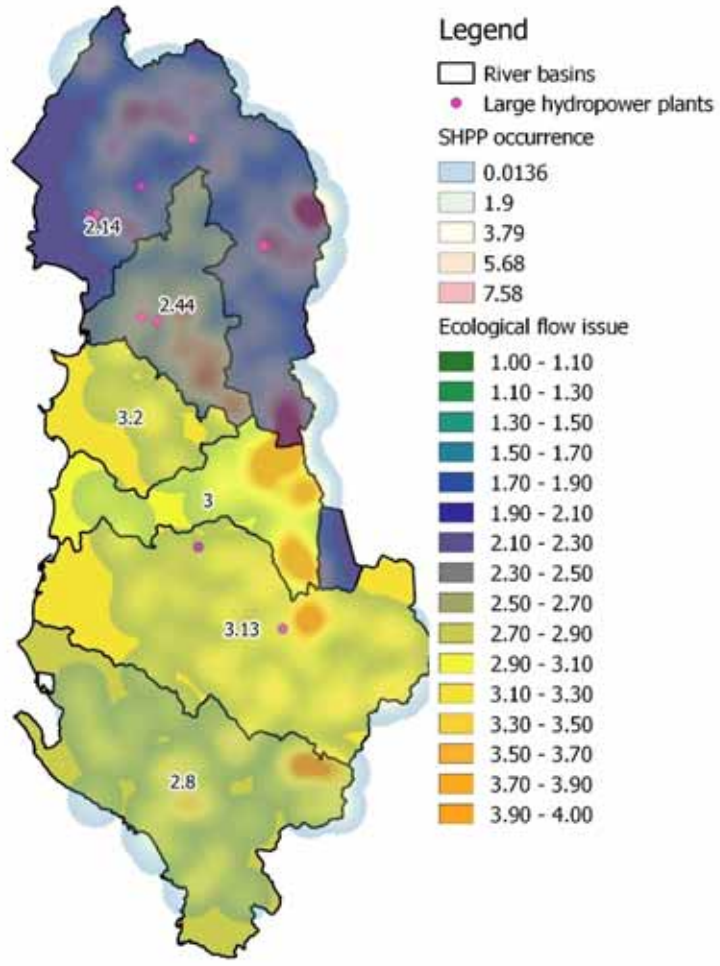
The EFs have been mostly set based on hydraulic methods and not taking into account biota needs (this is also apparent since fish communities, which are often used in EF estimation methods, were not part of the EIAs in almost 41% of the reviewed documents).

It was determined during the field survey that on average SHPP projects in Erzeni – Ishmi, Shkumbini and Semani river basins do not appear to have sufficient management of EF. The situation is on average somewhat better in Mati and Drini River basins because here for more SHPPs EF were set

based on natural river flow rather than minimal flow. This still does not mean that there are not issues with providing the ecological flow in these basins as well at particular sites.

RESULTS

Numbers shown for each basin are average values of grades given to sampled SHPP projects in that basin (scale 1 to 4: 1 – no impact, 4 – greatest impact). Grades were given to SHPP projects in the EIA review based on the description below (right)[5].



project impact grade description

1 – The project includes adequate provisions for ecological flow to meet the water supply need of affected users and to sustain ecosystem in the dewatered river segment – ecological flow has been designed through proper assessment of flow needs in extremely low flow and low flow periods and is well monitored.

2 – The project includes basic provisions for ecological flow which has been determined in ad-hoc manner and does not consider specific water supply needs of affected users and the need to sustain ecosystem in the dewatered river segment.

3 – The project does not appear to have sufficient management of ecological flow. The ecological flow has not been systematically determined and there are occasional problems during low flow periods.

4 – The project does not feature basic management of ecological flow. The ecological flow has not been systematically determined and there are frequent problems with flow management during low flow periods and even normal flow periods.

Figure A-10: Impacts of SHPPs on river ecological flow (based on the field survey and EIA review – sample of 44 SHPPs)

Since maintaining the environmental flow is crucial for biota, riverine habitats and maintaining river flow continuity, monitoring that the EF is being met and that it is effective, should be part of the monitoring program. The survey showed that this is not always the case for Albanian SHPPs, i.e. in 27% of the reviewed projects.

[5] More detail on issues considered, and grading, can be seen in the Annex 2 of the SEA – EIA review questionnaire template.

Another cumulative negative impact on biodiversity can arise from habitat fragmentation caused by accompanying features such as opening access roads, building new power lines or deviation pipelines. While all SHPPs require pipelines to divert the water to their turbines (powerhouses), 56% of sites visited during the survey (out of the sample of 71 SHPP) require new roads, and 46% require new power lines. These negative impacts are more pronounced in uninhabited areas, where the length of the necessary infrastructure is greater, and also, these areas are not under anthropogenic pressure, i.e. habitats are natural. Additionally, new power lines increase the danger from electrocution for birds.

Given the above analysis of negative impacts on biodiversity, which are mostly connected to inadequate environmental flow and barrier effects to fish migration, SHPP projects in **protected areas** (PA) potentially could have significant impacts on PAs. Apart from these, negative impacts that SHPP projects can have on landscape, can also seriously negatively impact protected areas. All the above-mentioned impacts are seriously enhanced when SHPP projects are planned as cascade systems.

During the field survey, a number of SHPPs located in PAs and Emerald Network area were visited (26 SHPP projects). Out of these 26 projects, 25 are not the only such project in that PA or Emerald Network area, thus having a cumulative negative impact on the protected site.

Even though the review showed that on average, at a basin level, SHPP projects have minor impacts on areas with high biodiversity value, this is due to the fact that not all SHPPs sampled are located within protected areas or Emerald Network areas. Spatial analysis showed that some protected areas are seriously in jeopardy from SHPP development scheme. What is additionally concerning is that EIA review showed that impacts on protected areas were not taken into account for most projects located in protected areas and cumulative for none.

In Drini River basin, the situation is the worst in Korab-Koritnik Nature Park, where 12 SHPPs are already operating and additional 6 are planned. Also, in National park Lugina Valbones 4 SHPP projects are under construction and one more is planned. The most alarming situation is, as was already mentioned, in Shkumbini River basin - **Shebenik-Jabllanice National Park** where 2 SHPPs are already operational, 3 are under construction and additional 30 are planned (according to available GIS information). In Semani River basin 3 SHPPs are already operational inside the Tomorri National Park and 2 additional are planned. In the Vjosa River basin, 3 SHPPs are operational, 2 under construction and 2 planned inside the Bredhi Hotoves-Dangelli National Park.

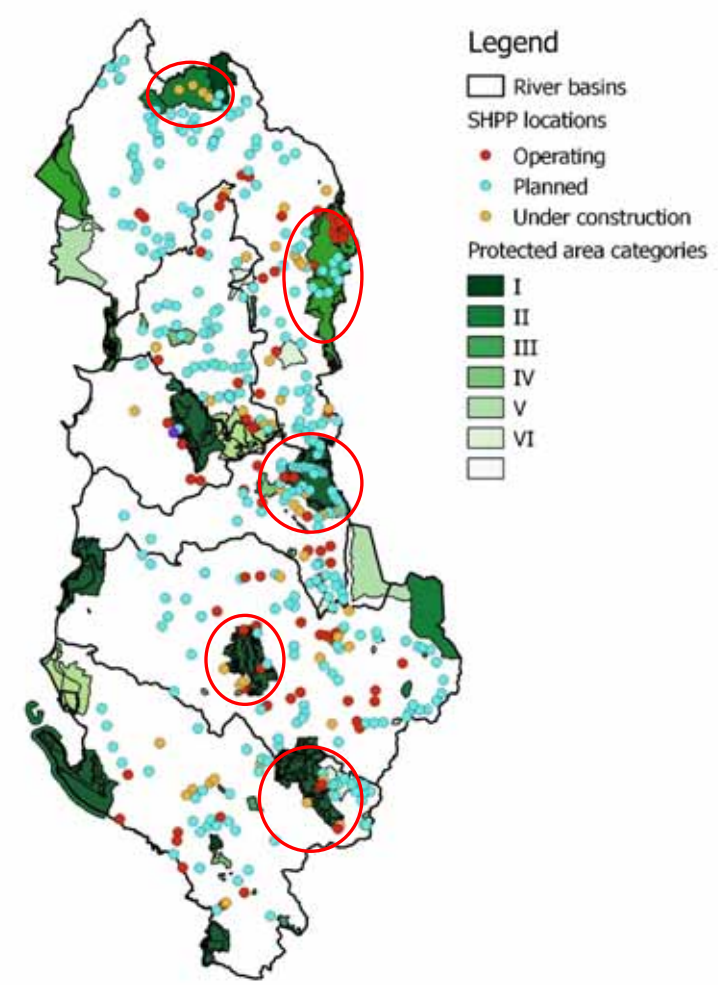


Figure A-11: Analysis of SHPP distribution in relation to protected areas

Emerald Network areas are also under threat from the SHPP development plans.

In Drini River basin 2 areas are under SHPP development pressure: AL0000023 Protected Landscape of Korabi (1 operational and 9 planned) and AL0000010 Alps (proposed National Park) (4 under construction and 10 planned). In Shkumbini, **AL0000022 National Park Rrajce-Shebenik area** (1 operational, 3 under construction and 28 more planned). In Semani River basin AL0000006 Tomorri National Park (3 operational, 3 under construction and 2 more planned) and AL0000013 Morava Protected Landscape (5 planned). In Vjosa River basin AL0000020 National Park Germenj-Shelegure-Leskovik-Piskal (proposed) area (1 operational, 1 under construction and 14 more planned).

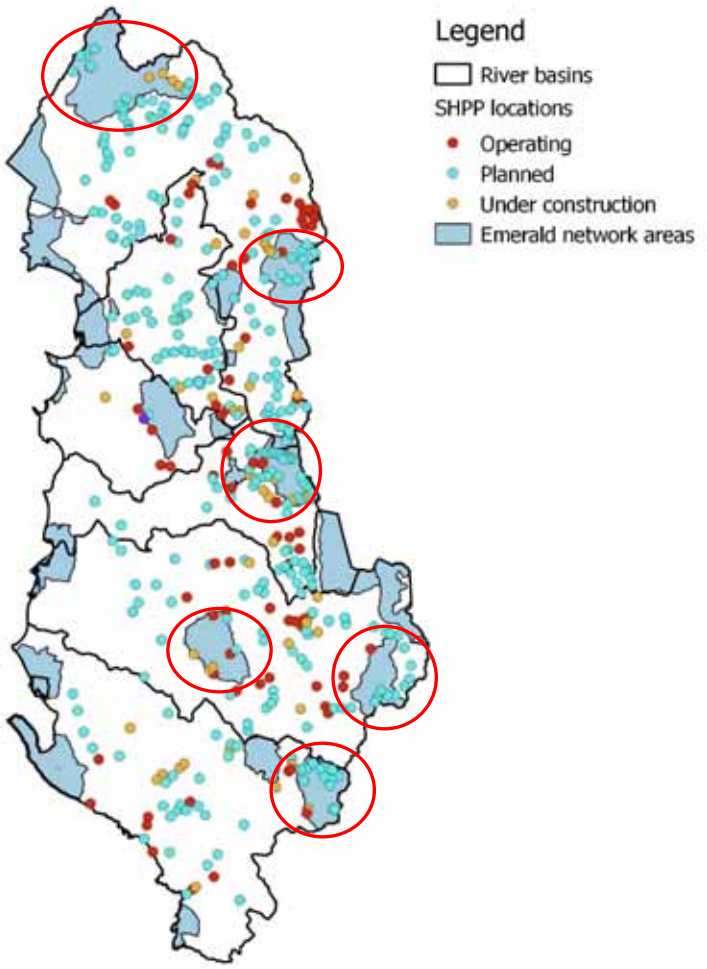


Figure A-12: Analysis of SHPP distribution in relation to Emerald Network areas

A.3.3 Impacts on landscape values

Even though a number of SHHPs are located in areas which are visually obstructed from the population, each of the SHHPs components has potential to create a change in the landscape features and visual impact. Level of impact varies from low to moderate, dependent on the SHHP element characteristics and local landscape value, character and uniqueness.

Construction of access roads causes degradation of landscape features on multiple levels. Direct impact is removal of natural vegetation, and when excavating on steep slopes, erosion processes that occur mainly as a consequence of construction works and poorly executed or unexecuted site rehabilitation measures. Construction of power lines, pipelines and other parts of SHHPs can to a lesser extent affect surface cover, relief features and consequent erosion processes. From that aspect threatened basins, based on the field survey, primarily is Shkumbini and then Vjosa, Semani, Mati and Erzeni- Ishmi.

Erosion processes are more pronounced in the mountainous and hilly areas and these areas are more vulnerable because of their valuable landscape features and dynamic relief. In absence of quality remediation, landscape features can be strongly decreased through time. Erosion connected

with SHPP projects, based on the field survey (sample of 43 operating SHPPs from the field survey) is currently present in all river basins, with only 11,7% of the projects not causing erosion.

Additional negative impact to the landscape can be caused by inappropriate management of construction waste, such as excavation material. Out of the 43 visited operational sites, only for 7 (16,3%), was excavation material management done appropriately. On other sites, deposition of material around SHPP site, or its elements and even in the river bed was noted.

Rehabilitation works can help prevent further erosion processes, as well as advance excavation material management, while favourably impacting the landscape scenery. Almost all reviewed EIA reports and SHPP Environmental permits stated that site rehabilitation is necessary. Out of these, 65% of projects had site rehabilitation plans drawn up within their EIA. However, the field survey showed almost a complete absence of rehabilitation works (98,6%) which can is a very poor practice.

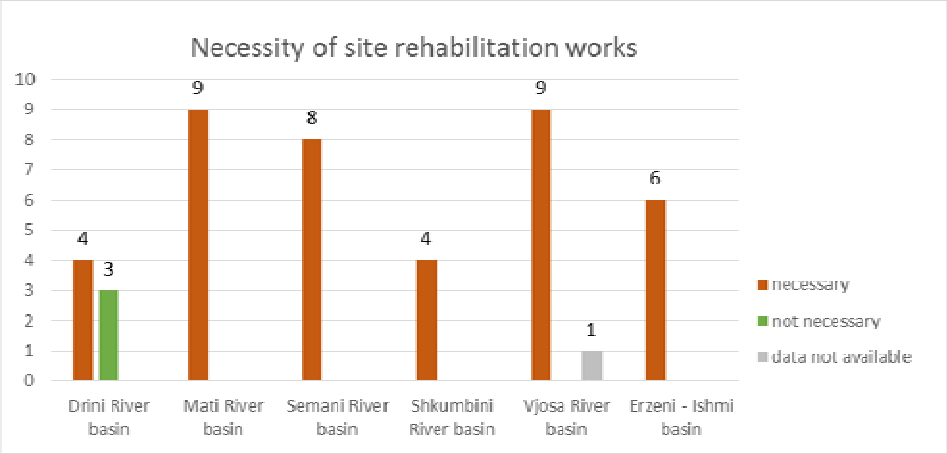
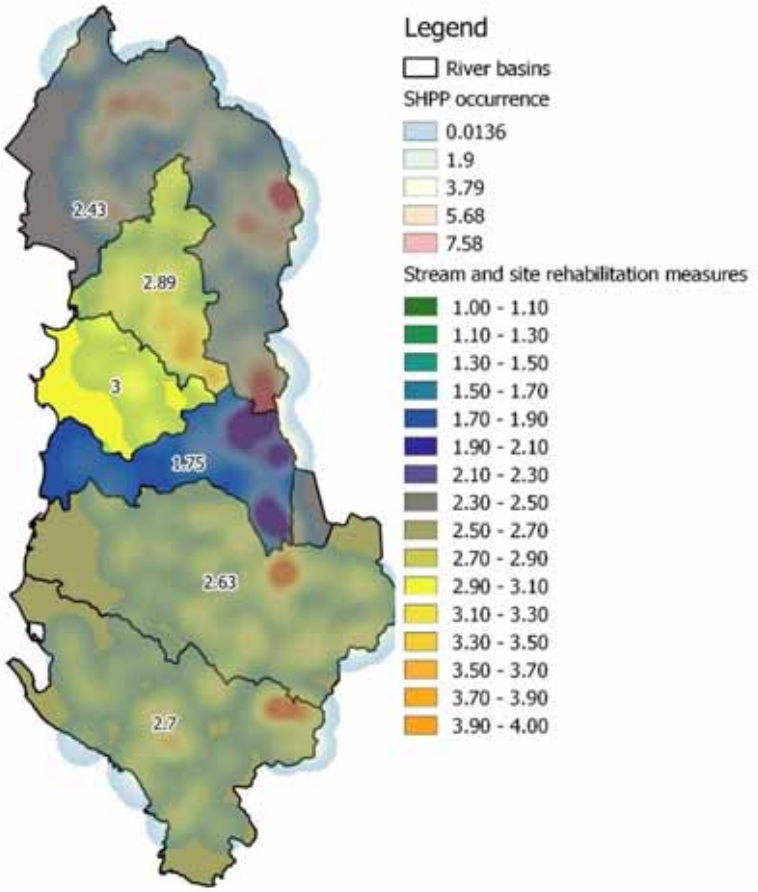


Figure A-13: Necessity of site rehabilitation determined in EIA (based on the sample of 44 SHPPs)

RESULTS

Numbers shown for each basin are average values of grades given to sampled SHPP projects in that basin (scale 1 to 4: 1 – no impact, 4 – greatest impact). Grades were given to SHPP projects in the EIA review based on the descriptions below (right)[6].



project impact grade description

1 - The rehabilitation works of the project are minor and with minor environmental implications

2 - The rehabilitation works of the project are important to offset the environmental impacts

3 - Proposed / Necessary rehabilitation works are minor but have not been undertaken (based on the site survey)

4 - Proposed / Necessary rehabilitation works are important to offset the environmental impacts but have not been undertaken (based on the site survey)

Figure A-14: Importance of stream and site rehabilitation measures (based on the field survey and EIA review – sample of 44 SHPPs)

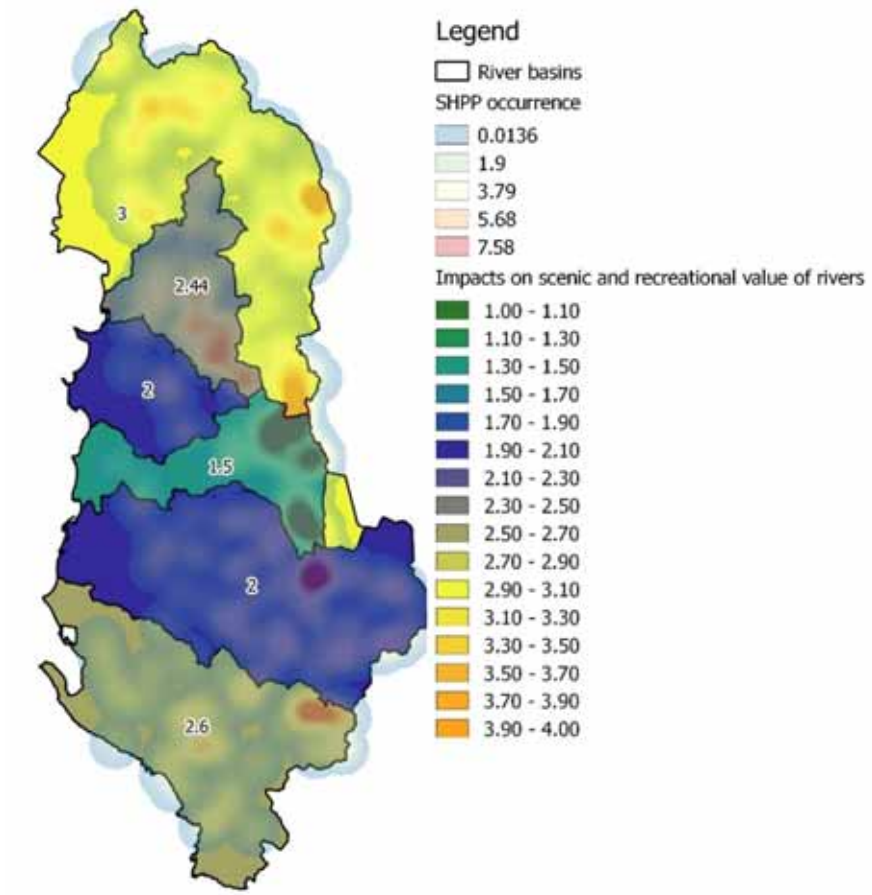
Visual impacts are closely related to scenic potential ('beauty' of the landscape) and frequency of views on the affected area. Visual barriers - mountainous relief, canyons and surface cover limit visual exposure to narrow areas of rivers and streams, which can be regarded as an area of scenic potential. Frequency of views is highest from roads and settlements. However, visual exposure of SHPP project elements to recreationists who use waterways and surrounding area can reduce river recreational potential, i.e. reduce its attractiveness to tourists. In cases when SHHPs have multipurpose accumulations recreational potential can be increased, but with a threat of landscape character change. Based on the field survey sample the rivers in the Vjosa River basin have a high visual potential, and therefore are more vulnerable to SHPP operations.

[6] More detail on issues considered, and grading, can be seen in the Annex 2 of the SEA – EIA review questionnaire template.

A joint assessment of SHPP project on river recreational and scenic value was done, and on basin level it shows the largest impacts in Drini basin, followed by Vjosa and then Mati.

RESULTS

Numbers shown for each basin are average values of grades given to sampled SHPP projects in that basin (scale 1 to 4: 1 – no impact, 4 – greatest impact). Grades were given to SHPP projects in the EIA review based on the descriptions below (right)[7].



project impact grade description

1 – The project does not have any direct or indirect impact on rivers with high scenic or recreational value

2 – The project has indirect impact on river with high scenic or recreational value

3 – The project has direct impact on river with high scenic value or indirect impact on river with very high scenic or recreational value

4 – The project has direct impact on river with very high scenic or recreational value

Figure A-15: SHPP impacts on scenic and recreational value of the rivers (based on the field survey and EIA review – sample of 44 SHPPs)

Physical and visual impacts eventually may change a landscape character. This is especially noticeable in the high value natural or cultural landscapes. Therefore, it is necessary to avoid valuable and sensitive landscapes. They are mainly found in protected areas or isolated areas with natural cover or traditional way of land use. Landscape impacts are identified or expected in over 90% of surveyed cases. Generally speaking, SHHPs will cause small to moderate local impact to landscape and scenic features. Apart from the inevitable impacts such as construction of roads, accumulations, power lines and pipelines there is a trend of adverse impacts which can be avoided or mitigated by site rehabilitation after construction works.

[7] More detail on issues considered, and grading, can be seen in the Annex 2 of the SEA – EIA review questionnaire template.

A.3.4 Social and economic issues

Potential impacts of SHPP projects on the community can vary from positive to extremely negative. Therefore, they should always be taken into account during the EIA procedure, which was examined during the EIA review. The results show that the number of **EIAs with included social impacts** certainly should be higher, since the results showed they were assessed only in 54,5%.
One such impact on the population is **hindering other water use** e.g. for irrigation. During the field survey, in the most cases, the analysis showed that currently there is no direct impact on irrigation or it is defined as possible. The highest number of projects with possible impact on irrigation is located in Mati River basin, which is closely related to local community use of available agricultural areas. As was mentioned earlier, these impacts are likely to be exacerbated in the future given the climate changes scenarios, possibly giving rise to conflicts between water users. Already, most conflicts regarding hydropower in Albania concern water use rights Water use rights is the main cause of conflict regarding hydropower in Albania[8].This is additionally supported by the analysis done for water use (see above).

Survey also showed that **newly created roads**, which are not restricted to SHPP workers, are used by locals, which can be a positive impact for the local community. However, the field survey also showed that opening roads, could lead to unauthorized or even illegal wood harvesting (felling).

Additional negative impact on economy of an area can come from a reduction of **tourist appeal** of rivers following the SHPP construction. This is closely related to potentially reduced scenic appeal and/or recreational value. The analysis of survey results shows that rivers in every basin have some recreational potential. In most cases, this potential was classified as poor or moderate. The excellent recreational potential is recognized only in Vjosa River basin, despite that in the most cases, or for 90,9% of the reviewed projects, the river recreational potential and potential impacts on it were not assessed in the EIA.

One of the main platforms for locals and other **stakeholders** to raise their concerns with the authorities and the investors during any project preparation, are consultations or stakeholder involvement during the EIA procedure. According to the analysed data, in the majority of SHPP project development, stakeholders were involved in the EIA procedure, or in 72,7% of the cases reviewed.

In general, during the preparation of the majority of the project, stakeholder involvement mostly included partial communication and engagement with directly affected stakeholders. However, in some cases the project preparation did not involve high quality communication with, and engagement of, directly affected stakeholders. The possible reason could be found in the fact that often SHPP project are has low population density or the project is located too far away from populated areas (Figure A-16).

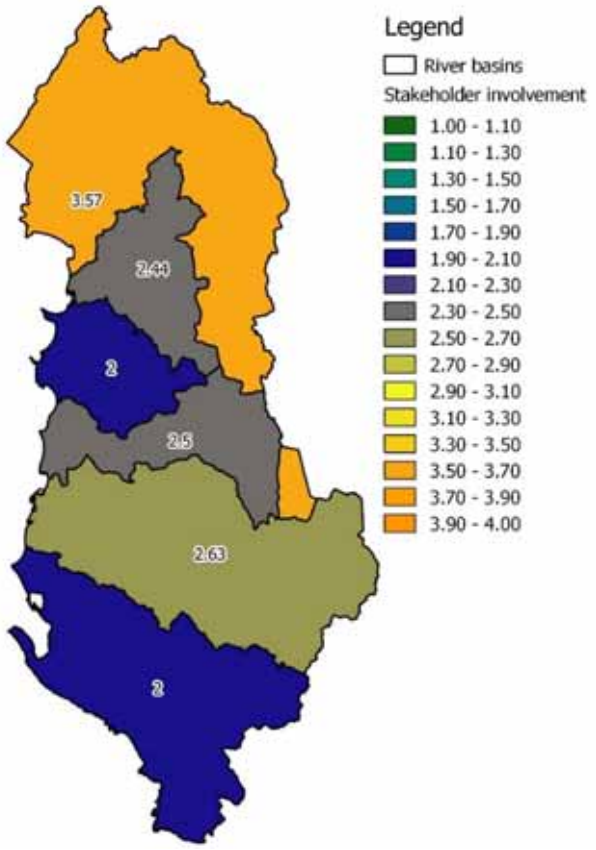
Research on water related conflicts to hydropower development in Albania[9] showed that inadequate stakeholder engagement led to a number of strong reactions against hydropower project (law suits,

[8] Assessment study – Identification of water related conflicts linked to hydro power projects in Albania, Milieukontakt Albania, Lex Ferend, Eco Albania, 2017 (https://issuu.com/help-cso/docs/water_conflict_study__2017_)
[9] Assessment study – Identification of water related conflicts linked to hydro power projects in Albania, Milieukontakt Albania, Lex Ferend, Eco Albania, 2017 (https://issuu.com/help-cso/docs/water_conflict_study__2017_)

blockades and even street protests), and that in the most analysed cases stakeholders were mobilized only when the construction started. The same research showed that interviewed stakeholders consider results of 64% of stakeholder conflicts unsuccessful.

RESULTS

Numbers shown for each basin are average values of grades given to sampled SHPP projects in that basin (scale 1 to 4: 1 – good stakeholder involvement, 4 – poor stakeholder involvement). Grades were given to SHPP projects in the EIA review based on the descriptions below (right)[10].



project grade description

1 – The project preparation has involved appropriately timed communications and engagement, often two-way, with directly affected stakeholders on topics of interest and relevance to them. Ongoing processes are in place for stakeholders to raise issues and get feedback.

2- The project preparation has involved partial communications and engagement with directly affected stakeholders on topics of interest and relevance to them. There are some outstanding issues of concern but the basic mechanisms exist to allow stakeholders to raise issues and get feedback.

3- The project preparation did not involve high quality communications and engagement with directly affected stakeholders on topics of interest and relevance to them. There are basic mechanisms for stakeholders to raise issues and get feedback.

4- The project preparation did not involve high quality communications and engagement with directly affected stakeholders on topics of interest and relevance to them. There are no basic mechanisms for stakeholders to raise issues and get feedback.

Figure A-16: The quality of stakeholder involvement (based on the EIA review – sample of 44 SHPPs)

Interviews with local inhabitants ware part of the field survey. Unfortunately, in uninhabited areas, and at some other sites where no locals were encountered, probably due to cold weather, interviews could not be conducted. However, in the cases in which interviews were conducted, the majority of the local community had neutral opinion and comments about the project. There are several reasons for these results, but the main reason for neutral opinion about the SHPP projects could be lack of interest in environmental topics in general or in the project theme itself. However, in 2 out of 14 cases, major protests from the locals to the SHPP development were noted.

[10] More detail on issues considered, and grading, can be seen in the Annex 2 of the SEA – EIA review questionnaire template.

A.3.5 Project environmental documentation analysis

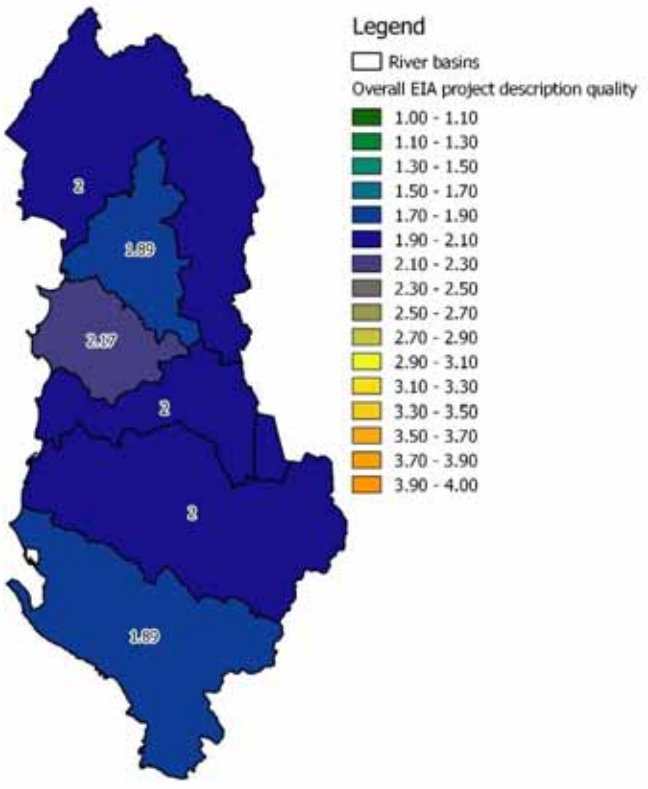
Given the above-mentioned impacts of the SHPP development, environmental project documentation was analysed within this project since it is a tool supposed to ensure minimal negative impacts on the environment.

The most concerning find is that only 6,8% of the reviewed projects (3 out of 44 projects) underwent the EIA procedure as per full legal requirements, which is attributed to the specific concession procedure they undergo. This minimizes the corrective and positive impact EIA procedure is supposed to have in any project development.

Around 80% of the project EIA were found to be lacking in SHPP project description detail. This can refer to location details (wrong GPS coordinates) major project features or other project features such as associated development (such as roads or power lines). As all subsequent assessments within an EIA are based on the project description, this is a significant issue. Analysis showed that, on average, EIAs generally presented correctly the project location and project major features.

RESULTS

Numbers shown for each basin are average values of grades given to sampled SHPP projects in that basin (scale 1 to 4: 1 – best, 4 – worst). Grades were given to SHPP projects in the EIA review based on the descriptions below (right)[11].



project grade description

1 – EIA fully presents the project location and project major features. Any changes made to the project design are those that correspond to obligations raised within the EIA or those that responded to well documented sustainability considerations for placement and design

2- EIA generally presents the project location and project major features.

3- EIA presents project in rather different location or of different design features. Changes made to project design cause significant environmental impacts.

4- EIA presents project in very different location or of very different design features. Changes made to project design cause very significant adverse environmental impacts.

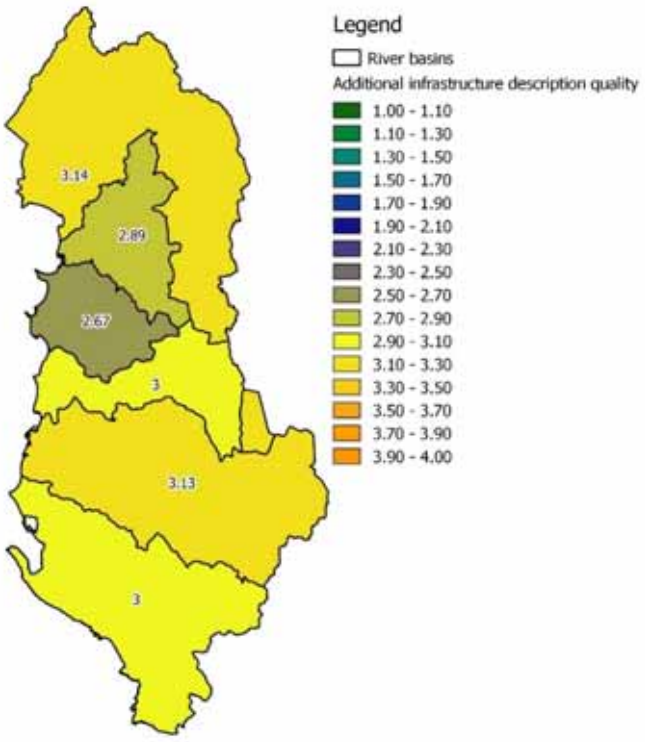
[11] More detail on issues considered, and grading, can be seen in the Annex 2 of the SEA – EIA review questionnaire template.

Figure A-17: The overall EIA project description quality (based on the EIA review – sample of 44 SHPPs)

The situation is less favourable when associated developments are taken into consideration, such as access roads and power lines. This is an important issue since, as was described above, these associated SHPP features can have significant local negative impacts on the landscape and biodiversity (removal of natural vegetation and habitat fragmentation).

RESULTS

Numbers shown for each basin are average values of grades given to sampled SHPP projects in that basin (scale 1 to 4: 1 – best, 4 – worst). Grades were given to SHPP projects in the EIA review based on the descriptions below (right)[12].



1 – EIA correctly presents all facilities that would not be constructed if the project did not exist. Impacts of these developments are not significant. Any changes made to associated developments are those that respond to obligations raised within the EIA or those that responded to well documented sustainability considerations for associated developments.

2- EIA generally correctly presents all facilities that would not be constructed if the project did not exist. Any changes made to associated developments do not significantly affect environmental impacts of the project.

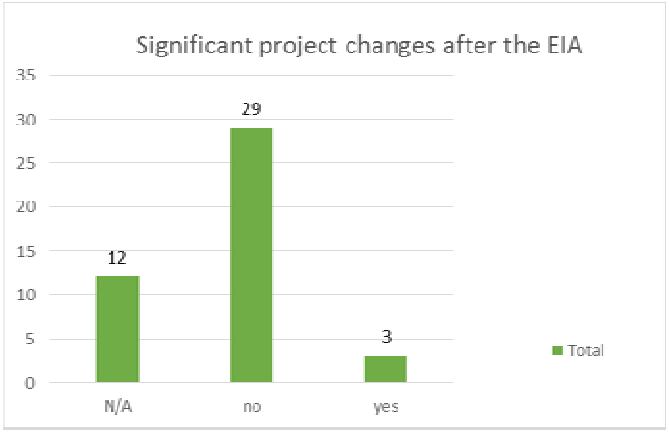
3- EIA does not accurately present associated developments. The implementation of associated developments causes significant environmental impacts.

4- EIA does not correctly present associated developments. The implementation of associated developments causes very significant adverse environmental impacts.

Figure A-18: The overall EIA description quality of additional infrastructure related to SHPP projects (based on the field survey and EIA review – sample of 44 SHPPs)

Even though, given the project development procedure, it is possible that SHPP project undergoes certain changes after the EIA procedure, the field survey and EIA review showed that in most situations these changes are not significant, and therefore significant impact intensification is not likely.

[12] More detail on issues considered, and grading, can be seen in the Annex 2 of the SEA – EIA review questionnaire template.



While the EIA review showed that in general, key environmental issues are addressed in the assessment, there is a general lack of cumulative impact assessment, which is cause for concern, because, as was mentioned earlier, SHPPs are often planned as cascade systems, or even if they are.

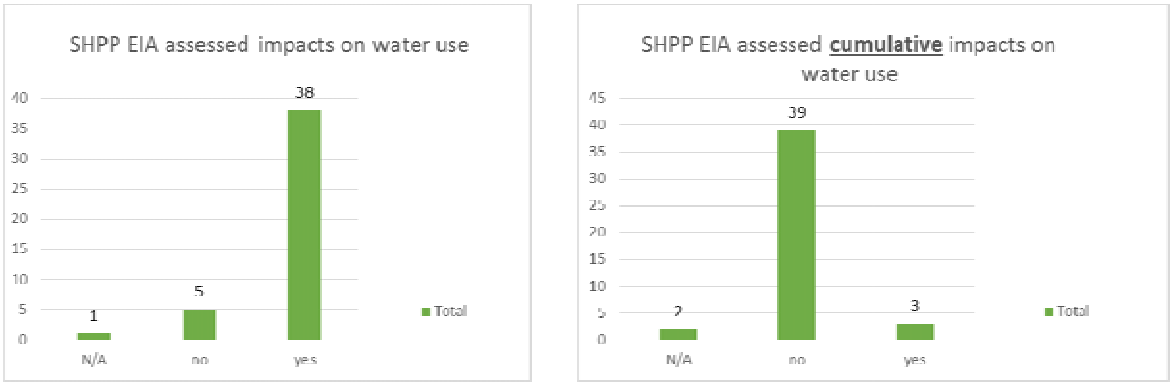


Figure A-19: Impacts on water use assessments (such as irrigation); (sample of 44 SHPP projects)

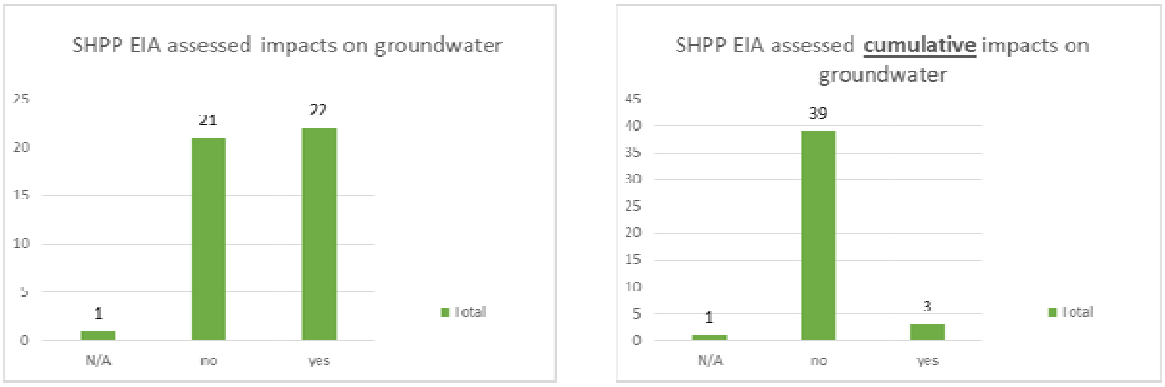


Figure A-20: Impacts on groundwater (sample of 44 SHPP projects)

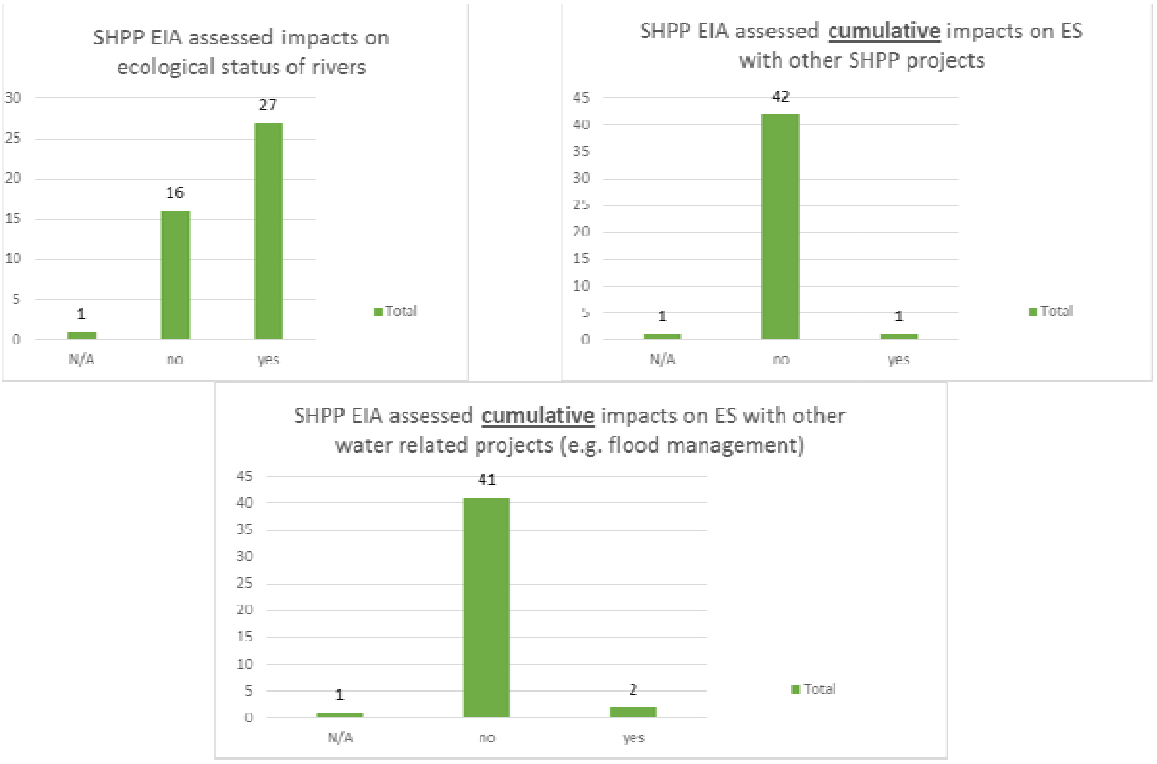


Figure A-21: Impacts on river ecological status (sample of 44 SHPP projects)

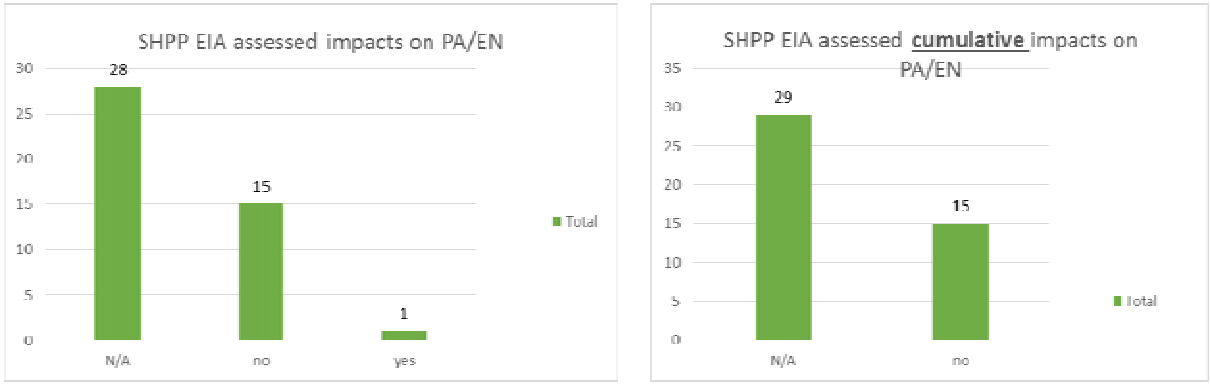


Figure A-22: Impacts on protected areas / Emerald Network (sample of 44 SHPP projects)

In order to minimize negative impacts, based on the EIA review, environmental management plan was included in EIAs for half of the reviewed sites. Also, monitoring programmes were set for almost all SHPP projects (Figure A-23). However, these often do not focus on key issues of concern and there are issues with systematic reporting process (Figure A-24).

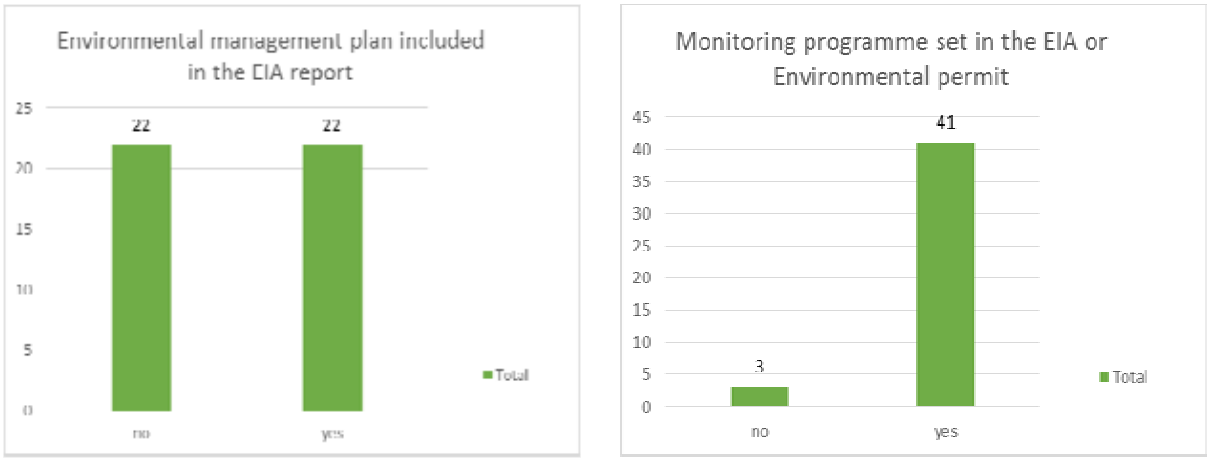
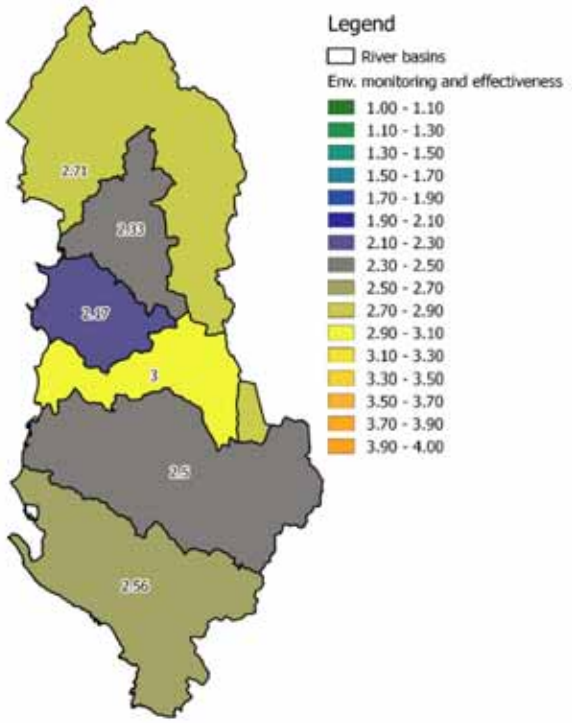


Figure A-23: Provisions for environmental management and monitoring (sample of 44 SHPP projects)

RESULTS

Numbers shown for each basin are average values of grades given to sampled SHPP projects in that basin (scale 1 to 4: 1 – best, 4 – worst). Grades were given to SHPP projects in the EIA review based on the descriptions below (right)[13].



project grade description

1 – Monitoring program identified in EIA, environmental declarations or environmental permits is in place and there is a proper monitoring and reporting process

2 – A basic monitoring program identified in EIA, environmental declarations or environmental permits is in place but a proper monitoring and reporting process not yet in place.

3 – The monitoring programme does not focus on key issues of concern and there is no systematic reporting process

4 – The monitoring programme is not in place

Figure A-24: Environmental monitoring quality analysis (based on the EIA review sample – 44 SHPPs)

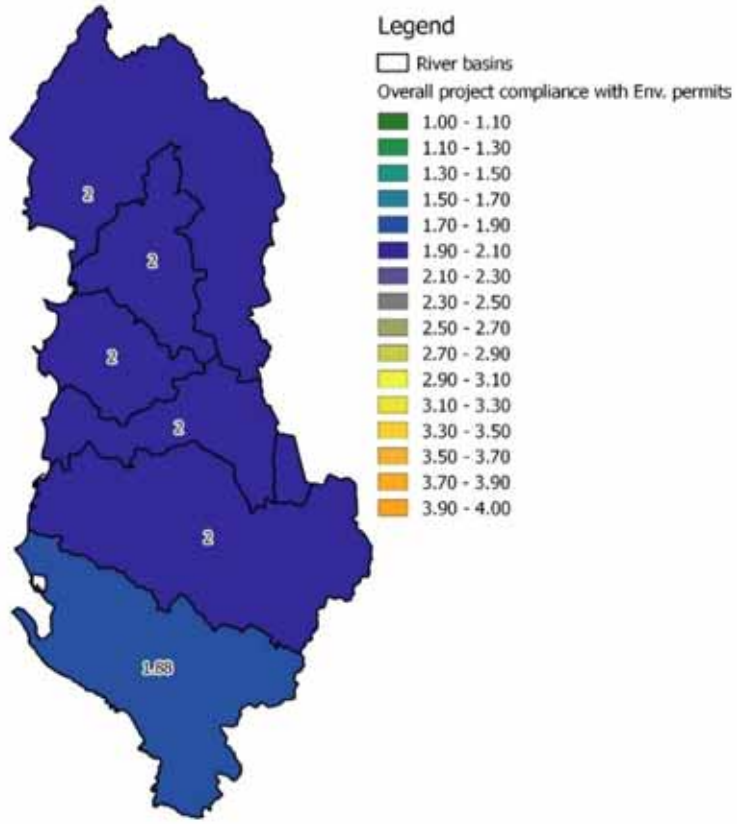
[13] More detail on issues considered, and grading, can be seen in the Annex 2 of the SEA – EIA review questionnaire template.

Another analysed issue was stakeholder involvement during the EIA procedure, which often lacking full involvement of potentially affected population. This issue was elaborated on earlier.

Another type of analysed documents in the review was the Environmental permit. Compliance with it was assessed and for majority of the projects was determined that compliance is not full. Based on a sample of 26 available Environmental permits, 96% of projects do not meet the set requirements. However, on average, these discrepancies do not lead to significant impacts (Figure A-25).

RESULTS

Numbers shown for each basin are average values of grades given to sampled SHPP projects in that basin (scale 1 to 4: 1 – full compliance, 4 – worst situation). Grades were given to SHPP projects in the EIA review based on the descriptions below (right)[14].



project grade description

1 – The project fully complies with conditions stipulated in environmental declarations or environmental permits (including those related to side remediation).

2 - The project does not comply with all conditions stipulated in environmental declarations or environmental permits (including those related to site remediation). Environmental requirements imposed in relevant decisions that are not met however cause only minor adverse effects. The situation can be easily improved by implementation of applicable mitigation/compensation – the project will require only basic inspection by relevant authorities.

3- The project does not comply with important conditions stipulated in environmental declarations or environmental permits (including those related to site remediation). Environmental requirements imposed in relevant decisions that are not met cause significant adverse effects. The situation can be improved by implementation of applicable mitigation/compensation but it will require dedicated effort and proper inspection by relevant authorities.

4 - The project does not comply with the most important conditions stipulated in environmental declarations or environmental permits (including those related to site remediation). Environmental requirements imposed in relevant decisions that are not met cause significant adverse effects. Remediation may be difficult to achieve in the current circumstances and there are sufficient grounds for consideration of withdrawal of project permit.

Figure A-25: Project compliance with the Environmental permit

[14] More detail on issues considered, and grading, can be seen in the Annex 2 of the SEA – EIA review questionnaire template.

A.4 IDENTIFICATION OF MONITORING NEEDS AND MANAGEMENT ACTIONS

Based on the previously described impacts several management actions are proposed:

- Enforcing site rehabilitation measures,
- Enforcing full coherence with proscribed environmental conditions (Environmental permits).

Monitoring is necessary, which is also reflected in project EIAs and Environmental permits that generally proscribe it. Conduction of already proscribed Monitoring programmes should therefore be enforced.

Monitoring of the ecological flow effectiveness should be incorporated in all future Environmental permits. Assessment of the river ecological status, and therefore effectiveness of set ecological flows should be monitored via biological, hydrological and morphological components (WFD, Annex V).
The biological components should be:

- Composition and abundance of aquatic flora,
- Composition and abundance of benthic invertebrate fauna,
- Composition, abundance and age structure of fish fauna.

The hydrological components to be included in the design of hydrological monitoring should contain:

- Quantity and dynamics of water flow: flow (magnitude, duration, timing, frequency and rate of change;), current velocity, water level (continuously),
- Connection to groundwater bodies (every six months): surface - groundwater interactions - water table height and fluctuation.

Morphological components should include, based on Annex V WFD, river depth and width variation, structure and substrate of the river bed and the structure of the riparian zone.

A.5 RECOMMENDATIONS WITH REGARD TO SHPP DEVELOPMENT IN ALBANIA

A.5.1 General recommendations - environmental protection, natural resources management and climate change

1. Preparation and adoption of the RBMP for all six basins as required by the Integrated Water Management Law. The RBMPs are crucial and only instruments to achieve environmental integration during the development of the HPPs projects based on an ecosystem approach.
   In the course of RBMP preparation, riparian habitats and water related fauna should be mapped and identified; threats and conservation needs evaluated. Ecological conflict areas with HPPs should be identified and “ecological status” of the rivers should be made part of the HPPs development terminology, designs and procedure. RBMPs should integrate climate change issues as well as flood protection and its possible interconnection with SHPP projects.
   RBMP should include necessary environmental flows, estimated based on hydrological (by examining historical flow data and setting natural flow levels), hydraulic-habitat simulations (concentrate on change in the amount of physical habitat for a selected set of target species or

communities) and holistic (take into account ecosystem needs and human requirements) methods used in a combination.[15]

2. The MTE could enforce the existing action plans for threatened species and finance more habitat and species studies. The Government (by DCM 866/2014) has adopted the habitat types and species of European Community interest and this list includes several habitats and species. Such decision is based on Habitat and Birds Directives and is a precursor of "Natura 2000" network for Albania. The establishment of special areas of conservation (SAC) will advance to increase the legal instruments of limiting and reducing the negative irreversible biological impacts of the HPPs. Such action would improve the implementation of several conventions for nature and biodiversity protection as well.
3. Specific environmental protection standards for the SHPP projects in line with environmental protection legislation should be set up. They should consider all key issues, such as biodiversity, environmental flows, water availability and use, climate change factors and environmental liability.
4. Conduction of monitoring programmes in place should be enforced nationally.
5. Adoption of the climate change sector policies such as the under-preparation Strategy and National Action Plan[16]. The preparation of these policy instruments has advanced by the MTE;
6. Hydro-meteorological monitoring system should be improved to allow monitoring and planning SHPP projects.
7. It is recommended to give provisions in national legislation like those of the Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage (the 'ELD'), which applies the "polluter pays principle" to mitigating environmental damage to soil, water and biodiversity (protected species and habitats). These provisions especially should be applied to Protected areas.

A.5.2 Recommended changes in SHPP approval

The recommendations that follow are based on the review of the SHPP approval procedures in Albania and are given with the aim to enhance incorporation of environmental concerns into the procedure, since research on SHPP concessioning showed that even within the EU member states there is no unified approach i.e. practices in SHPP approval vary greatly from state to state[17].

8. Environmental and social factors should be integrated into the procedure for granting development authorization for SHPP projects under 2MW of installed capacity, which are not subject to the concessioning procedure.
9. In general, the concessioning process should give more influence to environmental and social factors as well as cost-benefit analyses.

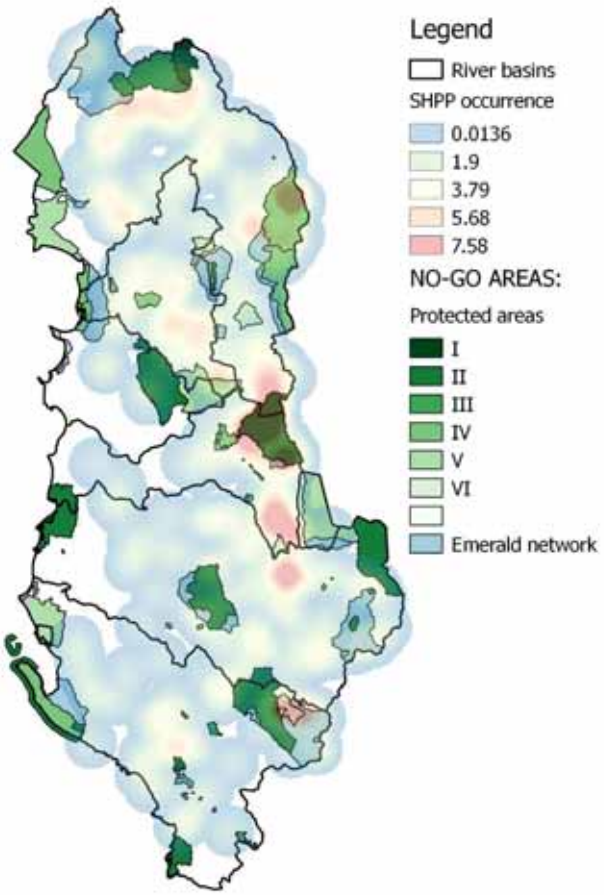
[15] The draft Principles for sustainable hydropower development in the Western Balkans recommends use of the following guidelines in RBMP preparation: the forthcoming European Commission guidelines on Natura 2000 and hydropower and the Common Implementation Strategy (CIS) guidance on article 4(7) of the EU Water Framework Directive with other existing CIS guidance; the International Commission for the Protection of the Danube River Guiding Principles: Sustainable Hydropower Development in the Danube Basin; EBRD Environmental and Social Guidance Note for Hydropower Projects and forthcoming other IFIs guidelines (WBIF; https://www.wbif.eu/content/stream/Sites/website/library/Draft-Principles-for-Sustainable-Hydropower-in-the-WB.pdf).

[16] The National Adaption Plan have been finalized from MTE

[17] European University Institute (2015): Regimes for granting the right to use hydropower in Europe

10. The ToR for the environmental information (EIA report) of the tender procedure should be done on a case by case basis rather than a general one without a relevant specification for the type of assessment needed especially concerning biodiversity impacts of the proposed project (site specific). It should include all necessary data for an accurate assessment, especially correct locations and accurate data on water flow.
11. The environmental review and input in the concession process should be performed within the MTE departments. The Ad-Hoc Group does not have required competencies and is not able to influence the process and achieve full environmental integration during this stage.
12. The environmental performance (assigned point share) within the tender procedure of 10% is not able to influence the proposed project, but only reduce or increase the chances of winning the tender from the respective investor. It would be more appropriate to adopt another ranking system with possibility to refuse the project proposal in the case of major ecological consequences.
13. Improving the legislation by adopting a specific environmental criteria's (a legal instrument) for the assessment of the proposed HPPs in this phase would improve the decision-making process.
14. The final project adoption should be made after the EIA approval phase (within MTE) and based on ecological criteria set during the EIA procedure. Adopting specific environmental criteria (a legal instrument) for the assessment of the proposed HPPs in this phase would improve the decision-making process. It should be noted that the EIA procedure is undertaken after the NANR project designs review and adoption from the Minister of the Energy and Industry. By this approach the EIA procedure turns to be very formal and not able to influence anymore the project environmental profile. After the EIA approval SHPP project changes should not be allowed, or if they are necessary, EIA (screening) should be done again with the new project data incorporated.
15. The environmental review and input should be developed within the MTE departments rather than by transferring this competence through one official nominated to the Ad-Hoc Group. MTE should be able to ensure that final project parameters are in line with environmental standards. This recommendation is especially important in absence of RBMP. This would help to align and coordinate among the project permits and to avoid technical and legal conflicts during project implementation.
16. Stakeholder involvement. The MIE and related ministries should publish details of the initiative including technical details about the project area, and not only notifications of the decisions. The MIE should invite parties to provide comments and suggestions for the project before publishing the tender call. Such practice would improve transparency and enable affected parties and water users to influence the project and ensure their legal rights since in the project concept phase. On the other side, this step would reduce investors' risks and conflicts during project implementation. Transparency during this process is an obligation arising from the Aarhus Convention of which Albania is a signatory party.
17. It is recommended to continue developing a GIS database of SHPP projects, make it official and publicly available. All new SHPP projects should submit to the database necessary GIS data (information about the site, coordinate system and the person who has prepared the .shp file), prepared by a licenced GIS expert, as well as other data project necessary for the database.
18. Due to the area value, protected areas and Emerald Network areas (or in the future, Natura 2000 Network areas) are recommended to be set as 'no-go' areas for SHPP development. Acceptability

of projects outside these areas, but in the potential impact zone and acceptability for particular protected nature monuments should be decided on project to project basis (during EIA)[18]:



A.5.3 Recommendations for enhancing SHPP EIA effectiveness and quality

Importance of including environmental sustainability in HPP planning through quality SEA and EIA procedures is stressed in the draft of Principles for sustainable hydropower development in the Western Balkans[19]

19. Although there is certain involvement of stakeholders in the EIA procedure, it is highly recommended to increase the quality of this involvement. The preparation of project should involve more quality communications and engagement with directly affected stakeholders on topics of interest and relevance to them. This could increase local interest and ensure that the local population is familiar with projects in their vicinity. On the other hand, it could decrease possible negative public opinion about specific projects. Where appropriate, a variety of educational and promotional materials should be given to local stakeholders before EIA

[18] This is supported by the National Strategy for Integrated Management of Water Resources in which is stated that projects located in protected areas should be reviewed.
[19] WBIF; https://www.wbif.eu/content/stream/Sites/website/library/Draft-Principles-for-Sustainable-Hydropower-in-the-WB.pdf

procedure. This could be a good way to timely inform the interested public about the project activities.

20. The time for the preparation and submission of the project files from the investors should be sufficient to enable the study of biological assets of a project area. The EIA report should contain the methodology of site investigation, especially biodiversity surveys.
21. Project descriptions should be done more thoroughly, incorporating all details necessary for a quality impact assessment and later for an informed decision on project acceptability for the environment, especially correct location data, and accurate data on water flow. Project descriptions should include all necessary associated developments such as access roads, new power lines, deviation channels/pipelines. Additionally, surface area under impact from the project should be given in the EIA.
22. EIA reports should always address project impacts on biodiversity (both riverine and terrestrial), protected areas and Emerald Network (or the future Natura 2000 Network), landscape, surface and groundwater, water use and other social and economic issues (including possible impacts to revenues arising from reduction of scenic and recreational value of a river). Also, they should assess cumulative impacts on these environmental parameters (arising from other SHPPs in the vicinity and other projects – flood protection, potable water extraction, irrigation...).
23. EIAs should give effective and feasible mitigation measures for all determined impacts.

A.5.4 Environmental recommendations

24. When approving new projects, priority should be given to run of river type (deviation) hydropower plants projects over impoundment types (with reservoirs).

25. SHPP projects with weirs or dams should have fish passages, except when it is concluded in the EIA, based on biodiversity surveys, that a specific river does not contain ichthyofauna. For constructed projects, which do not have them, this would require weir/dam reconstruction. If approved but still planned SHPP projects do not have them planned, changes to the project, and relevant permits would be required.
26. Ecological flow downstream from the water intake must be maintained at all sites. Its effectiveness must be monitored (see chapter E.3.). If monitoring shows negative effects, changes to water use regime must be made accordingly.
27. Water use for energy purposes must not hinder potable water use or use of water for irrigation[20] (also taking into account expected increases in water need due to climate changes).
28. If a project is planned with a reservoir, it is recommended that in addition to its original function it has added features/value: sports and recreation, irrigation, possible potable use, flood prevention[21].
29. SHHP elements' shapes should largely follow features and shapes of the local landscape. Visually prominent elements that distort the quality of the landscape should be fully or partially hidden with green or stone barriers.
30. During the construction, surplus excavated material should be disposed in an appropriate site, away from the watercourse. After completion of works surplus material should be used as remediation material or must be disposed of at an adequate official landfill.

[20] In congruence with the National Strategy for Integrated Management of Water Resources (June 2017).
[21] In congruence with the National Strategy for Integrated Management of Water Resources (June 2017).

31. After construction, it is necessary to remediate the surrounding area with rehabilitation of slopes and erosion areas, reconstruction of the stream banks (return to the as-natural state as possible), landscaping and reforestation. For operating SHPPs and those under construction assessment of the environmental rehabilitation costs of each SHPP should be done and rehabilitation works imposed.

32. For operating SHPPs monitoring must be conducted in order to assess the ecological performance and establish performance improvement strategy based on specific protection standards (recommendation 5).
33. If operating SHPPs show poor environmental performance, environmental approvals should be revised and updated with case by case conditions/measures for environmental protection (aligned with specific protection standards/performance criteria for the SHPP projects – recommendation 5) and all related permits should be accordingly aligned (i.e., environmental, water, energy etc.), followed by new condition implementation on site.
34. Approved but still planned SHPP projects should be re-evaluated in the light of established performance criteria including also the climate change factor (recommendation 5) and their environmental approvals should be revised and updated with case by case conditions/measures for environmental protection.