



**Inception Meeting
of the Preparation Phase of the
GEF supported project**

***“Enabling Transboundary Cooperation
and Integrated Water Resources
Management in the Extended Drin River
Basin”***

Tirana, 27-28 May 2013

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South Eastern Europe***





IWRM in shared basins depends largely on national water management frameworks

Institutional and legal frameworks in the (non EU members) Drin Riparians

Basis for this reform process: *the EU accession Process*
EU Water Framework Directive (WFD)

Revised or under an on-going revision process

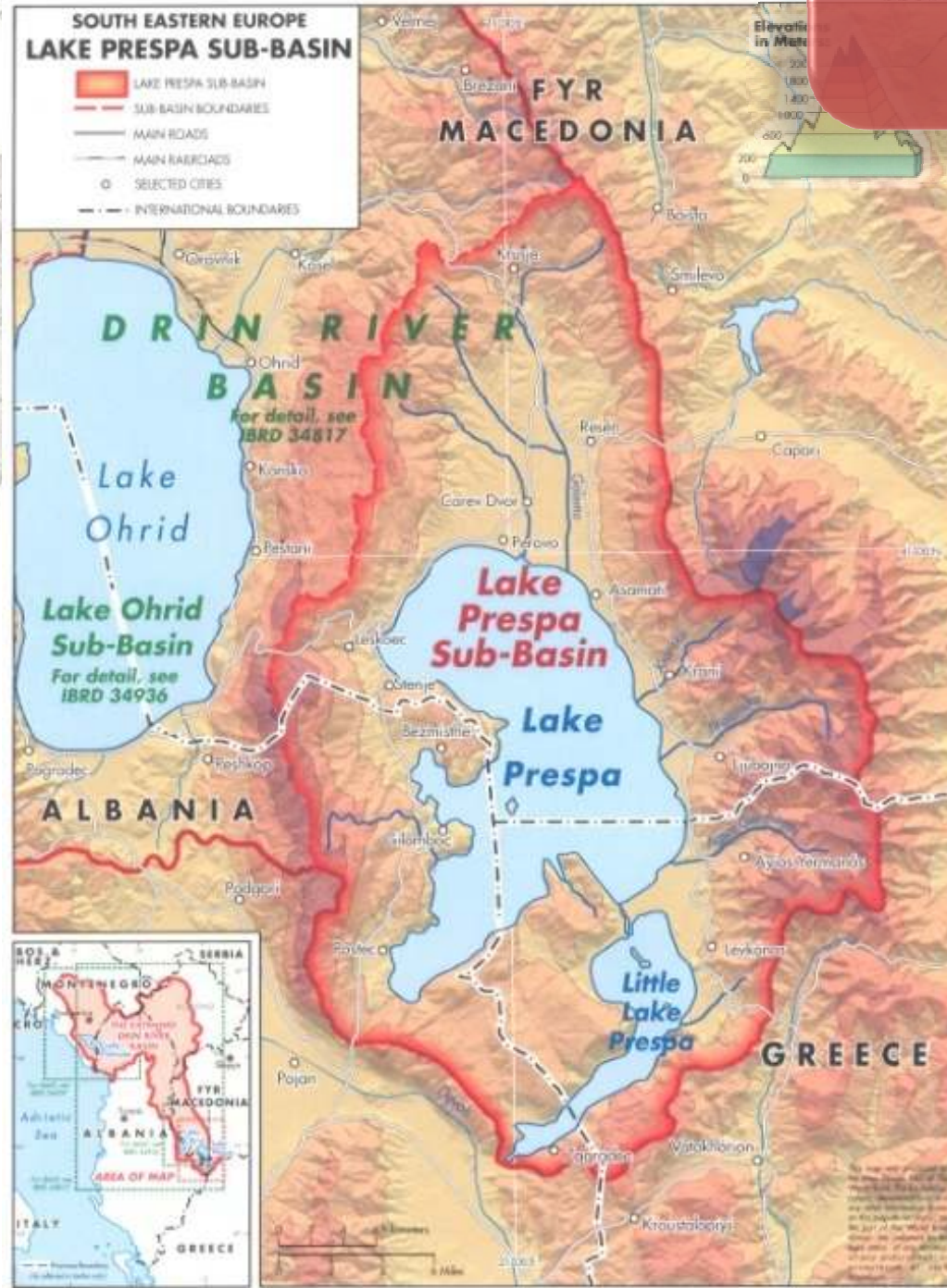
Transposition of the EU WFD in the legal framework of the countries

- Expected to have a positive effect on the cooperation for the management of transboundary water resources
- (Eventually / In principle) Harmonized legal framework

Riparians, have progressed at a different pace depending on the evolving cooperation framework with the EU, prevailing socio-economic situation and administrative capacities

Overall reforms: considerable. Nevertheless, deficiencies in the area of implementation and enforcement. The reasons are manifold.

Prespa



Diversion of Devoll River in Albania (in the 70's)

[*Micro Prespa*]

- Logging
- Extensive collection of firewood
- Grazing
- Unsustainable forest management

[*South-West part of the sub-basin*]

Unsustainable agricultural practices

[*Macro Prespa – East / North-East / North part of the sub-basin*]

Deforestation - deterioration of forests

Increased Sediment loads - Sedimentation

Prespa

Prespa

Permanent alteration of hydrological system (blocked underground springs)

[almost the total of the Albanian part of Micro Prespa Lake transformed from a shallow lake into a wetland]

Increased Sediment loads - Sedimentation

Good for wildlife (avifauna) but accelerates ageing and succession processes of the lake

Contributing factor for the destruction of the wetlands [Micro Prespa Lake]



[Micro Prespa]

Natural hydrological cycle - pressures due to irrigation are currently minimal in this part of Albania
[Micro Prespa]

Prespa

Decrease of the water level over the years

[Macro Prespa]

Changes in precipitation patterns
+ Underground water flow from Prespa to Ohrid watershed
+ Additional losses due to overuse of water for irrigation
[East / North-East / North part of the sub-basin / in South-West part of the sub-basin : water for irrigation and household use - insignificant effect]

Oscillation -
Decrease of the water level over the years

Prespa

Decrease of the water level over the years

Shift in the habitats and probably some alteration in the composition of the ecosystem.

[South-West part of the sub-basin]

[Micro Prespa]

[Macro Prespa]

Shift or loss of priority shoreline and wetland habitats

- Reed biotope remained on dry terrain *[East / North-East / North part of the sub-basin]*
- Spawning areas destroyed, impacting the fish population, especially of the carp
- Changes in the food chain potentially endangering the overall balance of the aquatic ecosystem

Oscillation - Decrease of the water level over the years

Prespa

Decrease of the water level over the years

Shift in the habitats on the Albanian side and probably some alteration in the composition of the ecosystem.

[South-West part of the sub-basin]

[Micro Prespa]

Oscillation - Decrease of the water level over the years

Exploitation of former wetlands transformed into agricultural or pasture lands

Increased potential for pollution from agrochemical as well as organic pollution

[Macro Prespa]

Micro Prespa

Fact:
Inadequate wastewater collection and lack of treatment [*South-West part of the sub-basin*]

Causes?

Currently heading towards eutrophication

Facts:
•Water transparency decreased to few cm
•Composition of the phytoplanktonic community

- Major pressure on fish population
- Effect on the balance of the ecosystem

Macro Prespa

Unsustainable agricultural practices (fertilizers) [*East / North-East / North part and South-West part of the sub-basin*]

Insufficient wastewater management [*South-West part of the sub-basin*]

Insufficient wastewater management [*East / North-East / North part of the sub-basin*]

Disposal of excessive apple production [*East / North-East / North part of the sub-basin*]

Industry [*East / North-East / North part of the sub-basin*]

Unsustainable agricultural practices (herbicides and pesticides) [*East / North-East / North part of the sub-basin*]

Nutrients input

Bacterial pollution

Organic pollution

Hazardous and toxic substances pollution???

Macro Prespa

Mesotrophic; indications (composition of the diatom population community) suggest that it is in process for eutrophication

Nutrients input

Bacterial pollution

Effect on the balance of the ecosystem

Depleted dissolved oxygen concentrations – particularly in summer

Organic pollution

But some suggest that there are alterations of the ecosystem

No adequate information available regarding the concentrations in the lake

Hazardous and toxic substances pollution???

Macro Prespa

Inappropriate means of fishing (inappropriate nets)

Poaching during spawning periods

Introduction of non-native or exotic species

Over-fishing

- Decline of native fish stocks
- Changes in the structure of fish populations
- Changes in the species composition

Overall fish biomass may be constant (or even increasing) - commercial fish stocks are under threat

Facts:

- Limited statistics on fish numbers and catches
- Albania: fishing is exercised by part of the population to complement its income or for house consumption

Macro Prespa

- **Loss of biodiversity**

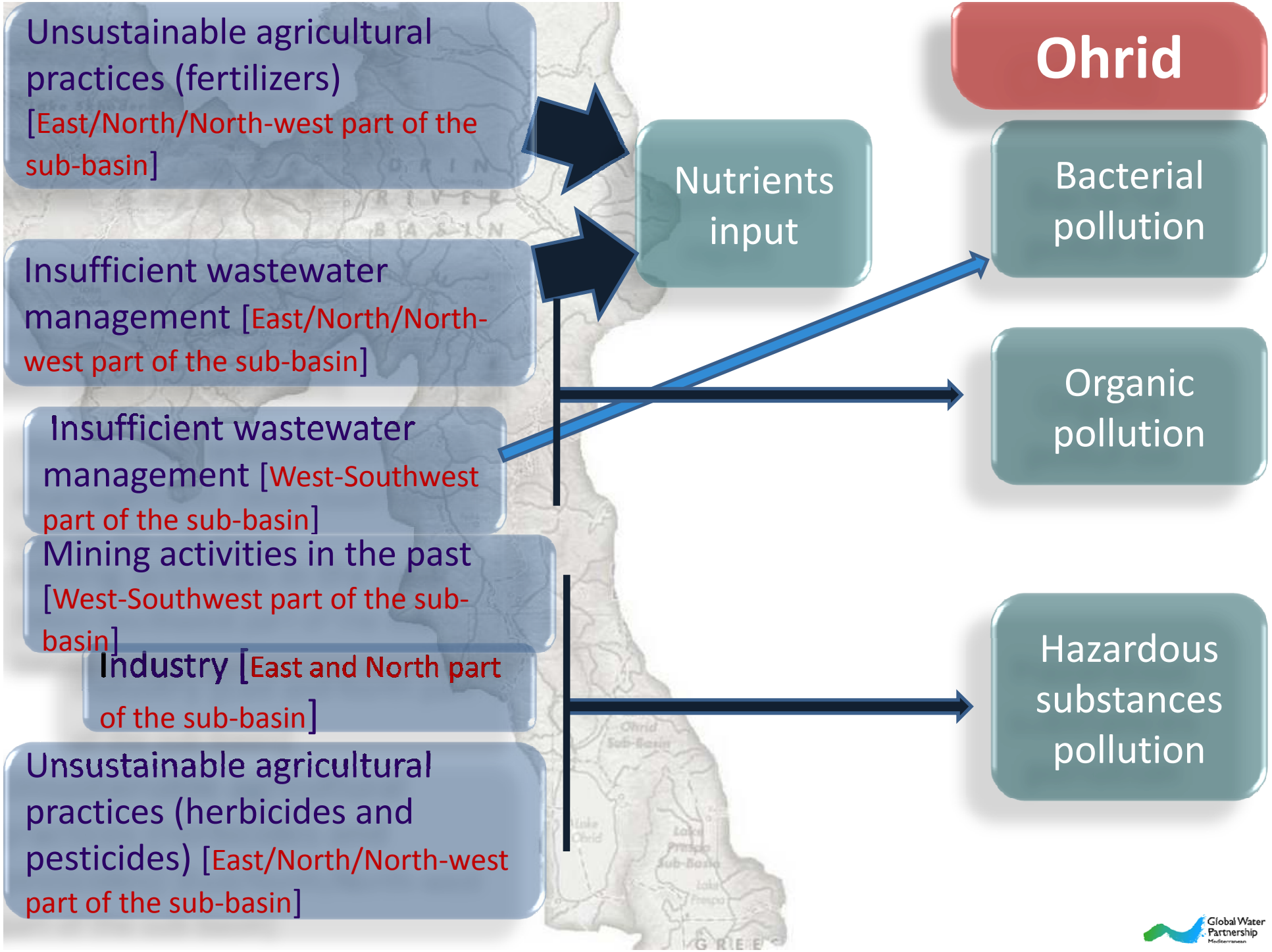
- **Risk of potential loss of revenue for fishermen**

- Decline of native fish stocks
- Changes in the structure of fish populations
- Changes in the species composition

Overall fish biomass may be constant (or even increasing) - commercial fish stocks are under threat

Facts:

- *Limited statistics on fish numbers and catches*
- *Albania: fishing is exercised by part of the population to complement its income or for house consumption*



Unsustainable agricultural practices (fertilizers)
[East/North/North-west part of the sub-basin]

Insufficient wastewater management [East/North/North-west part of the sub-basin]

Insufficient wastewater management [West-Southwest part of the sub-basin]

Mining activities in the past [West-Southwest part of the sub-basin]

Industry [East and North part of the sub-basin]

Unsustainable agricultural practices (herbicides and pesticides) [East/North/North-west part of the sub-basin]

Nutrients input

Ohrid

Bacterial pollution

Organic pollution

Hazardous substances pollution

Ohrid

Bacterial
pollution

Organic
pollution

Hazardous
substances
pollution

Nutrients
input

Oligotrophic; indications of progressing eutrophication (shifting of phytoplankton and zooplankton communities and benthic fauna in the shallow-water zone into "eutrophic species")

Potential effect on the balance of the ecosystem

- Elevated level of PCB in edible fish
- Elevated trace metals in sediments in west part of the lake (mining)

Ohrid

Over-fishing

Fishing ban ?

Introduction of
non-native or
exotic species

- Fish populations under pressure
- Decline of commercial species stocks

Ohrid

Social and economic drivers

Urbanization /Constructions

Unsustainable tourism

Soil sealing hence, amplification of runoff processes

Recreational activities [East and North part of the sub-basin]

Periodically increased need for wastewater treatment, waste disposal and water supply

Insufficient sanitation infrastructure

- Fragmentation and loss and/or modification of habitats
- Biodiversity is directly and indirectly, threatened

Ohrid

Diversion of Sateska [*North-East part of the Sub-basin*]

Extraction of sand and gravel [*Sateska watershed*]

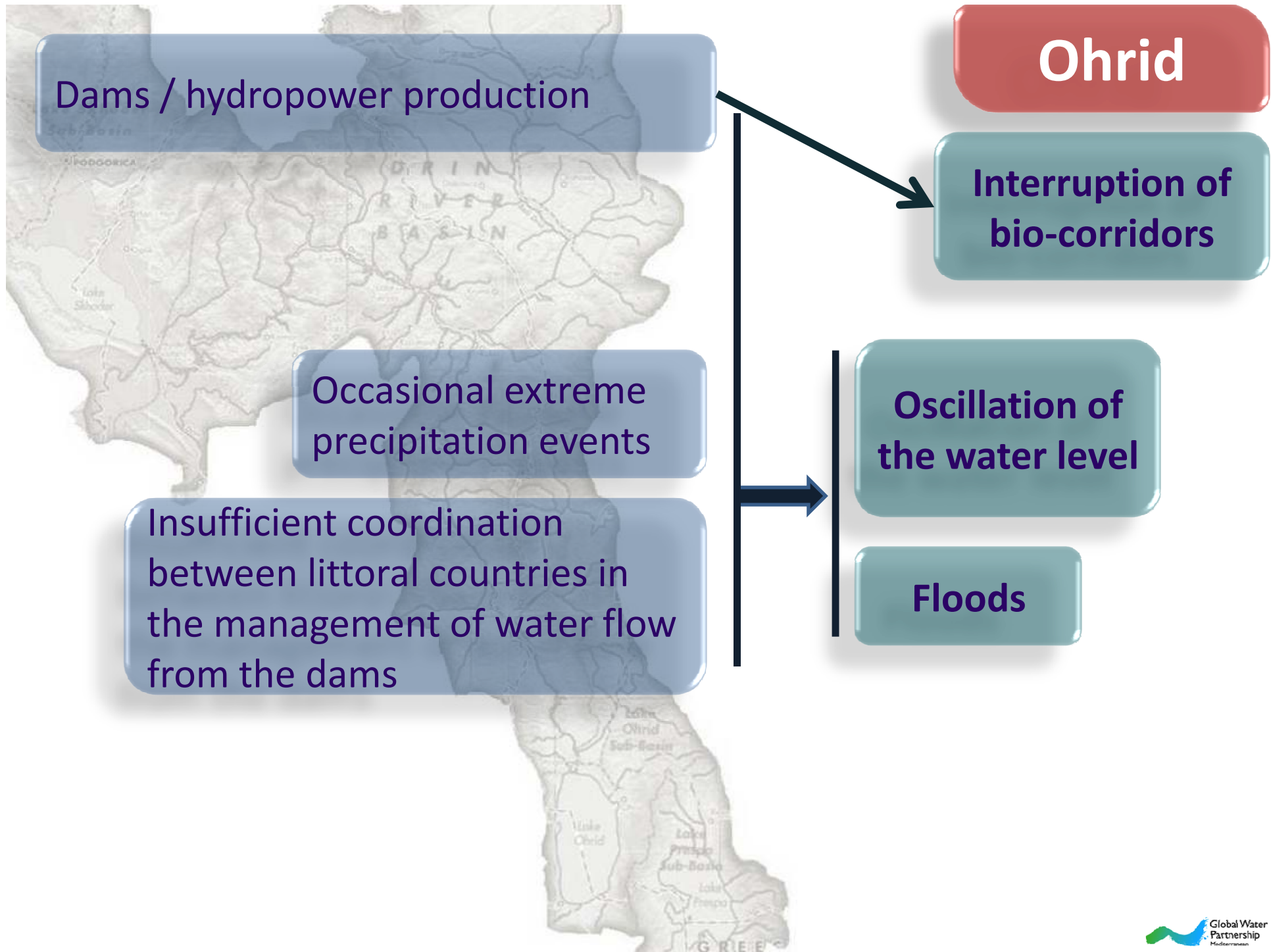
Unsustainable agricultural practices [*East/North/North-west part of the sub-basin*]

- Logging
- Extensive collection of firewood [*West-Southwest part of the sub-basin*]
- Grazing
- Forest management [*West-Southwest part of the sub-basin*]

Deforestation [*all sub-basin*]

Increased Sediment loads

Floods in the **Black Drin** [*Upper part of the sub-basin*]



Ohrid

Dams / hydropower production

Ohrid - Atlantic eel

Interruption of
bio-corridors

May lead to the shift of littoral zone
habitats and/or deterioration or even
elimination of the wetlands

Oscillation of
the water level

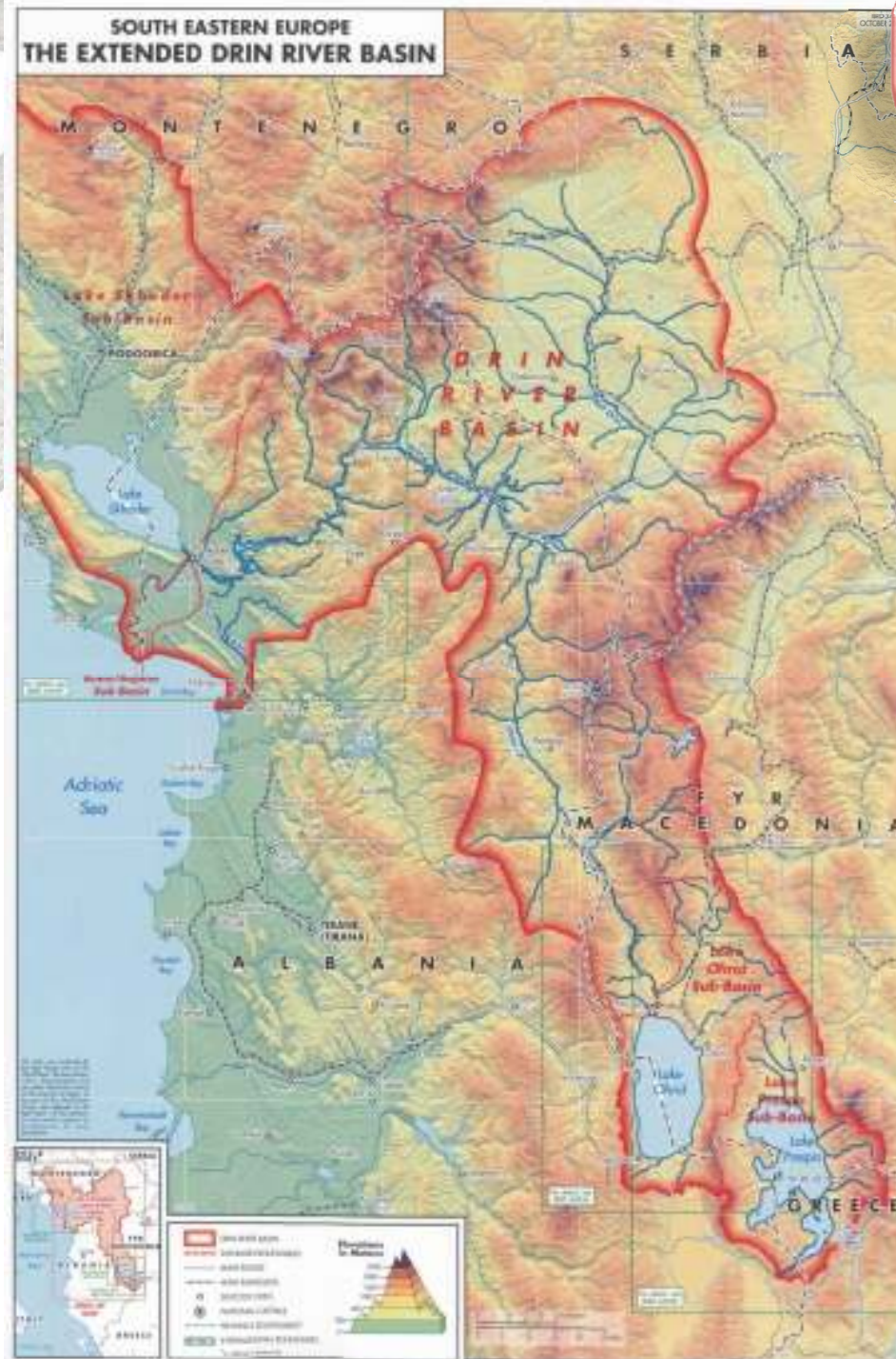
Floods

- Deterioration of
biodiversity

- Commercial fishing:
negatively affected

Negative effects on the
anthropogenic (e.g.
sewage system)
environment

Drin

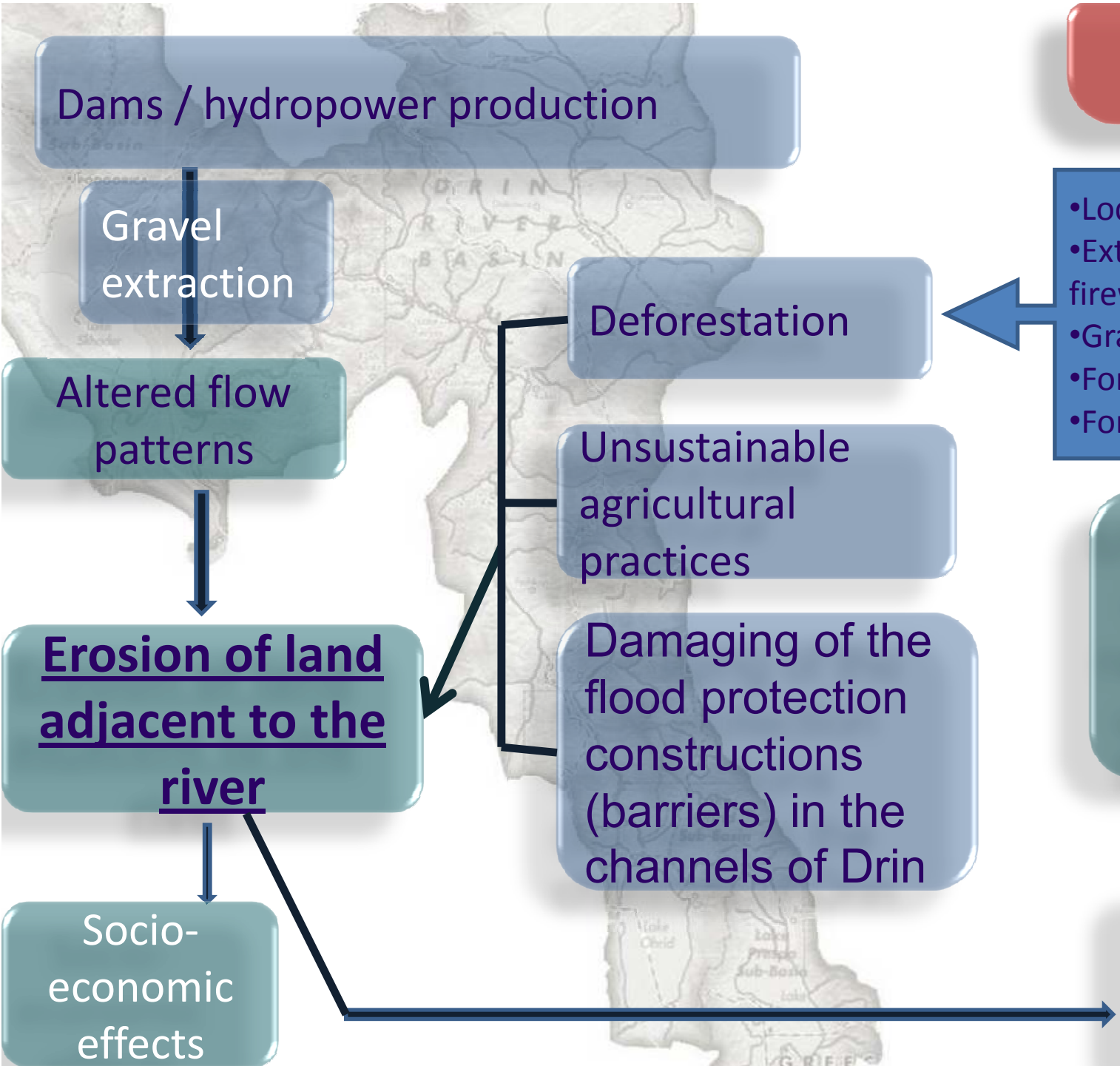


Drin

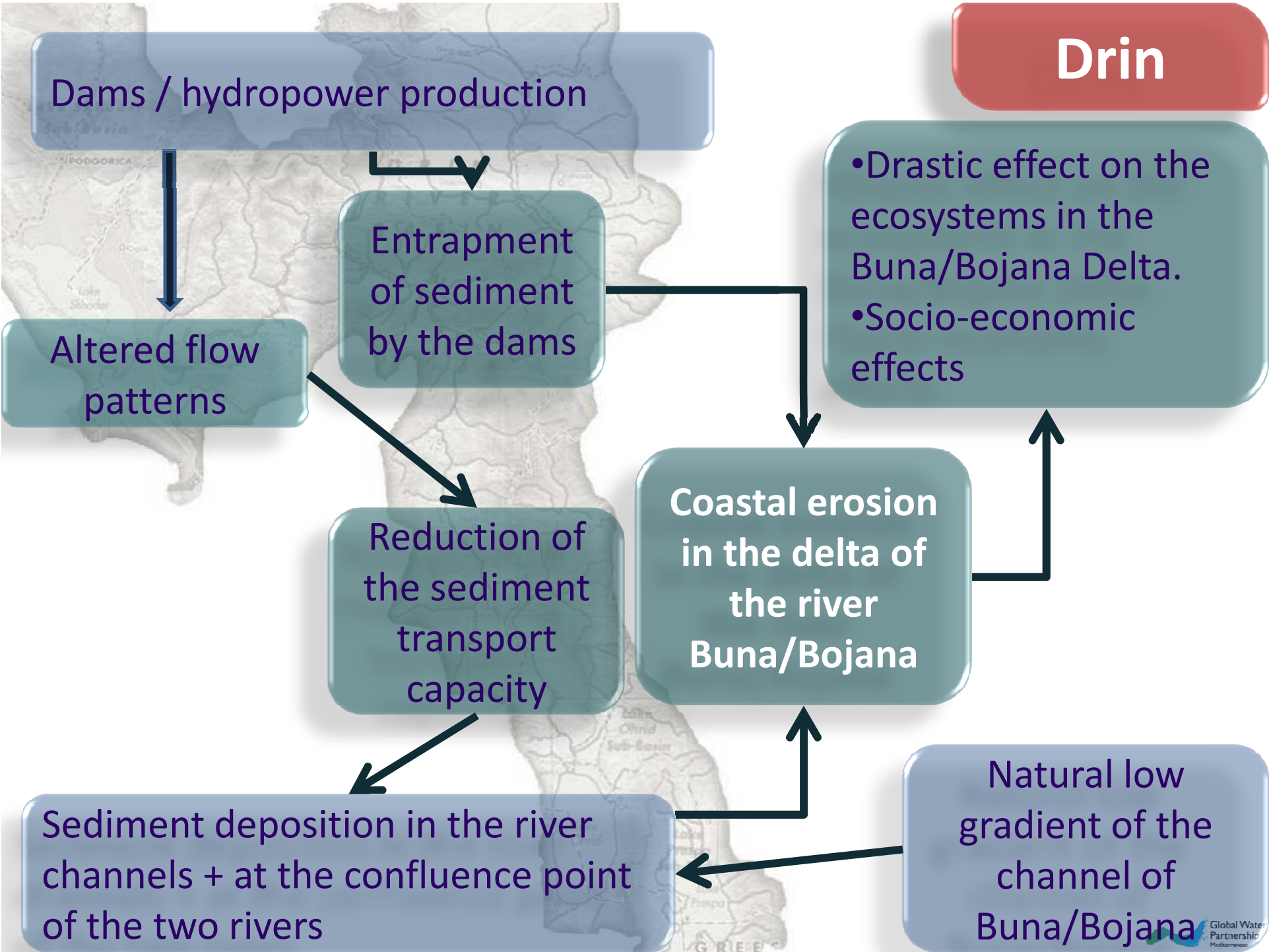
- Lodging
- Extensive collection of firewood
- Grazing
- Forest fires
- Forest management

May result in increased rate of filling up of Vau i Dejes lake

Increased Sediment loads



Drin



Drin

Dams / hydropower production

Water releases from artificial lakes upstream (depends on rainfall and electricity demand)

Extreme weather phenomena

Altered patterns of oscillation of the water level of **Shkoder/Skadar Lake**

Increased flow in the Drin River

Sediment deposition in the river channels + at the confluence point of the two rivers

Drin

Altered patterns of oscillation of the water level of **Shkoder/Skadar Lake**

Increased flow in the Drin River

Sediment deposition in the river channels + at the confluence point of the two rivers

Alteration of the characteristics of the coastal habitats (shallow floodplain type of lake)

Outflow of the **Shkoder/Skadar** through Buna/Bojana is impeded
Water even enters in the Lake Shkoder/Skadar

Detrimental socioeconomic effects in the region

FLOODS

Significantly raised water level

Drin

**[Black Drin –
Upper part of the
sub-basin]**

Potential causes /
sources: Unsustainable
- management of
domestic wastewater and
solid waste;
- agriculture;
Mining activities

**[Black Drin –
Lower part of the
sub-basin /
Drin sub-basin]**

Potential causes /
sources:
Unsustainable
-management of
domestic wastewater
and solid waste;
- Mining and industrial
activities

No adequate
information
available with
regard to water
quality

Drin

**[Black Drin –
Upper part of the
sub-basin]**

Potential causes /
sources: Unsustainable
- management of
domestic wastewater and
solid waste;
- agriculture;
Mining activities

According to some data:
Nutrient levels appear to be
low if compared to the other
sub-basins of the Drin River
basin.

**[Black Drin –
Lower part of the
sub-basin /
Drin sub-basin]**

Potential causes /
sources:
Unsustainable
-management of
domestic wastewater
and solid waste;
- Mining and industrial
activities

Drin

**[Black Drin –
Upper part of the
sub-basin]**

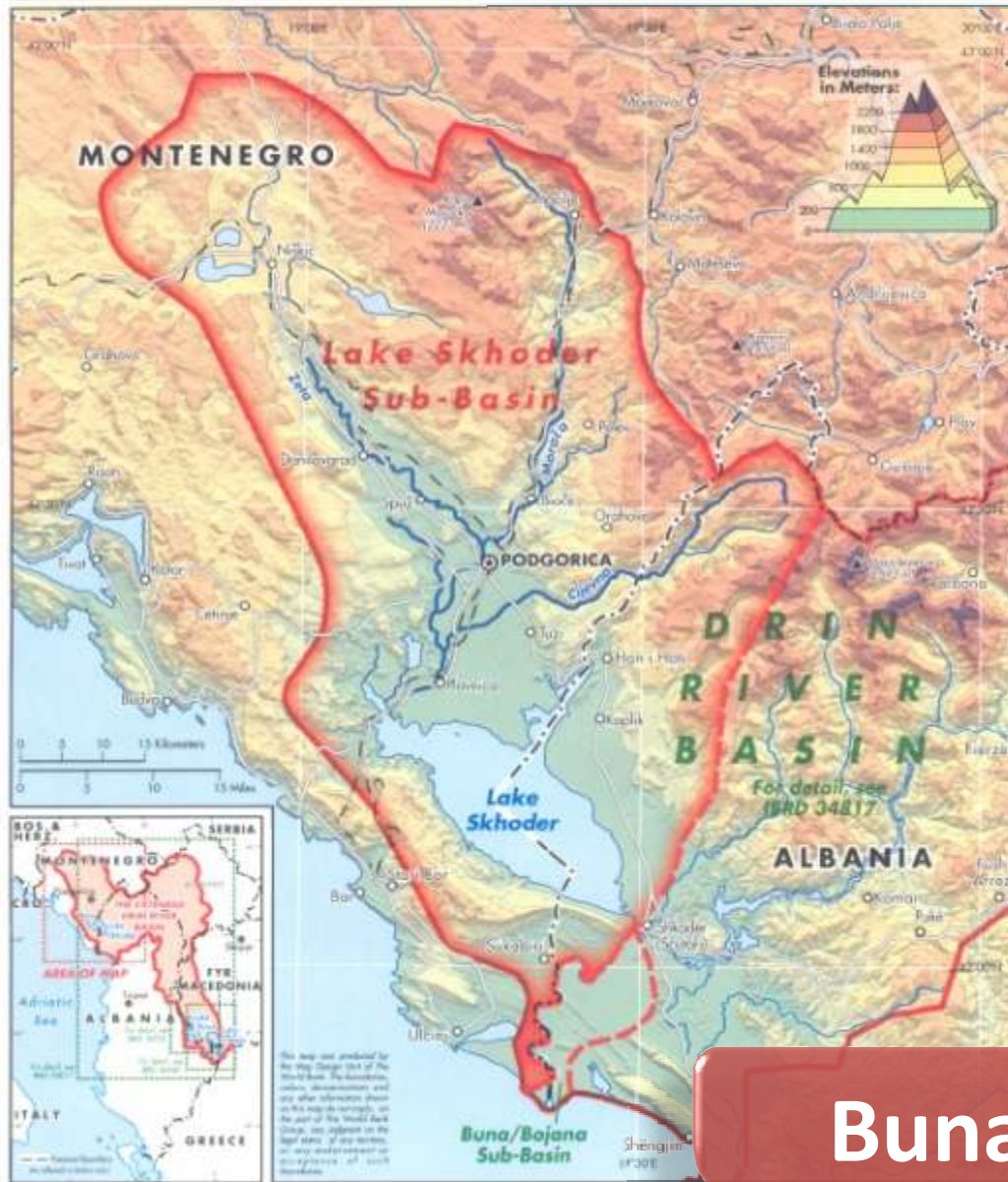
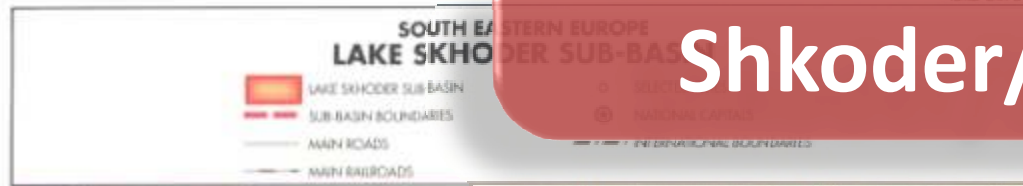
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- management of
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- agriculture;
Mining activities

**[Black Drin –
Lower part of the
sub-basin /
Drin sub-basin]**

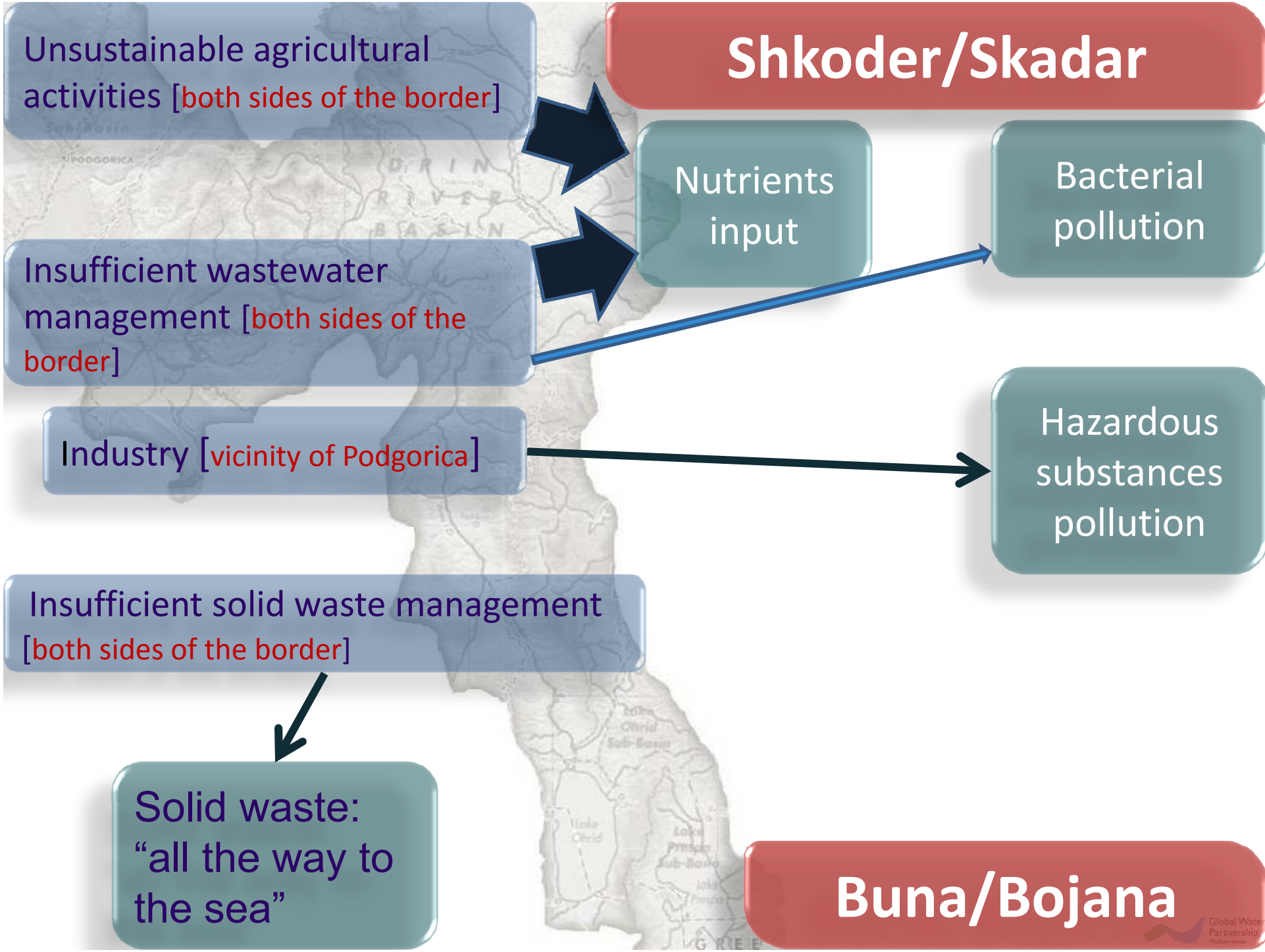
Potential causes /
sources:
Unsustainable
-management of
domestic wastewater
and solid waste;
- Mining and industrial
activities

According to some
publications
concentrations of
nutrients are high
compared to values
observed in Prespa and
Ohrid.
Overall water quality in
the Drin River is good
(Albanian MoEFWA).

Shkoder/Skadar



Buna/Bojana



Unsustainable agricultural activities [both sides of the border]

Shkoder/Skadar

Insufficient wastewater management [both sides of the border]

Nutrients input

Bacterial pollution

Industry [vicinity of Podgorica]

Hazardous substances pollution

Insufficient solid waste management [both sides of the border]

Solid waste: "all the way to the sea"

Buna/Bojana

Shkoder/Skadar

The image features a topographic map of the Drin River Basin in Albania. A red rounded rectangle at the top right is labeled 'Shkoder/Skadar'. A black arrow points from this rectangle to a teal rounded rectangle in the center-left of the map. This teal rectangle contains text about water quality and renewal. To the right of this teal rectangle is another teal rounded rectangle labeled 'Nutrients input - elevated'. A black arrow points from this rectangle down to a red rounded rectangle at the bottom right labeled 'Buna/Bojana'. The map shows the Drin River Basin, Lake Shkoder, and other sub-basins like Lake Ohrid and Lake Prespa.

Overall quality of water appears to be reasonably good
high renewal rate of 2-3 times per year

Nutrients input - elevated

Buna/Bojana

Shkoder/Skadar

Social and economic drivers

Unsustainable tourism

Urbanization /Constructions

Soil sealing hence, amplification of runoff processes

Recreational activities [both sides of the border]

Periodically increased need for wastewater treatment, waste disposal and water supply

Insufficient sanitation infrastructure

- Fragmentation and loss and/or modification of habitats
- Biodiversity is directly and indirectly, threatened

Buna/Bojana

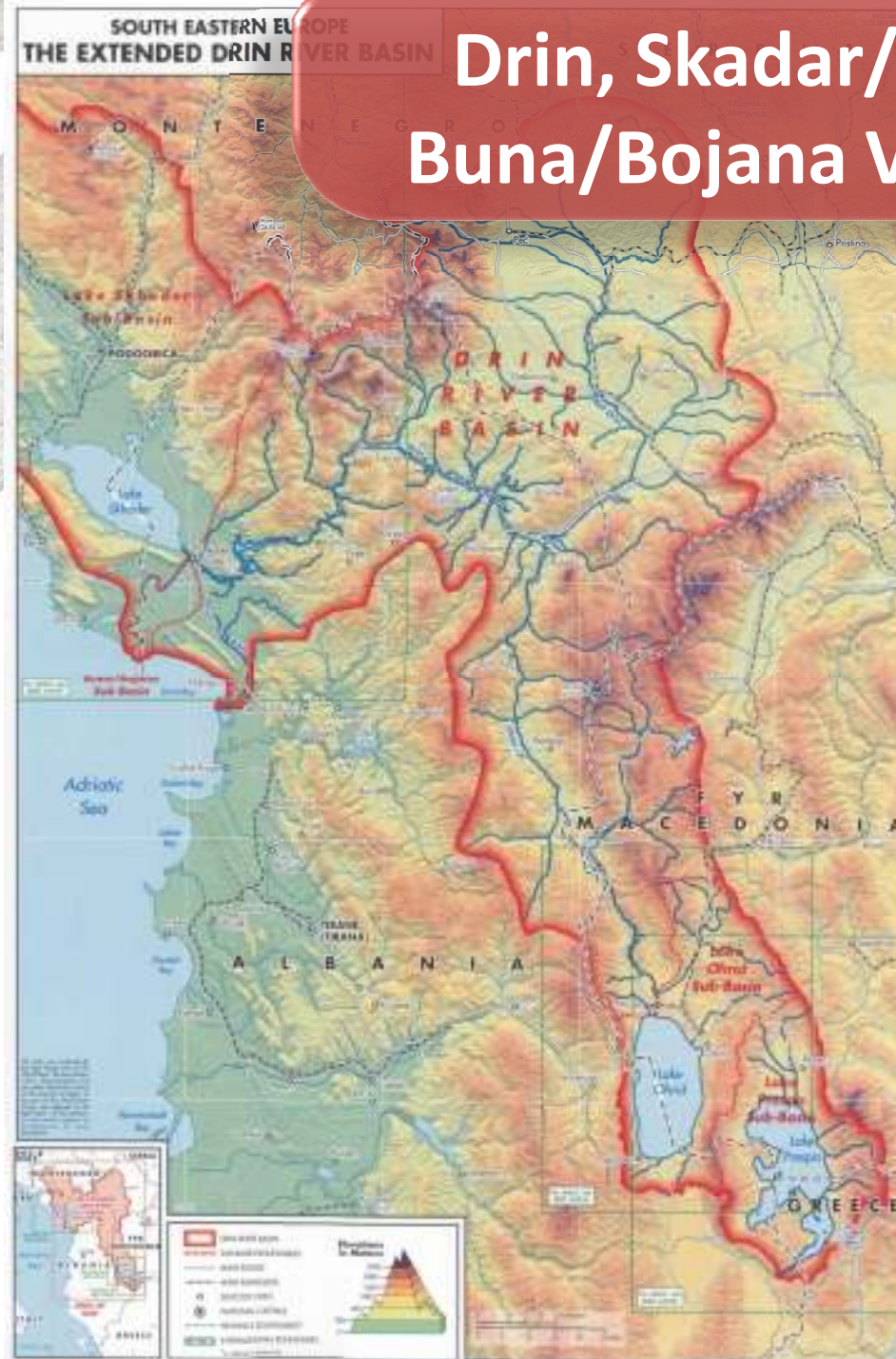


Shkoder/Skadar

Hunting leads to major pressure to the ecosystem

Buna/Bojana

Drin, Skadar/Shkoder, Buna/Bojana Vau I Dejes



Drin, Skadar/Shkoder, Buna/Bojana Vau I Dejes

Over-fishing

Inappropriate means of fishing (inappropriate nets)

Non-discriminatory and destructive fishing methods: explosives, high voltage, electrical shock and poisons

Poaching during spawning periods

Introduction of non-native / exotic species

Water regime disturbances and water pollution

- Decline of fish stocks
- Changes in the structure of fish populations
- Reduction in the number of fish species
- Changes in the species composition
- Etc.

Drin

Nutrients ends up in the **Drin hydrologic system** and possibly to the **Adriatic Sea**

- Anthropogenic sources contribute 95% of the nutrient load

- Agriculture is the main source of nitrogen and phosphorus

Contribution of each source varies from site to site



Thank you for your attention!

Dimitris Faloutsos

***Programme Coordinator for
South Eastern Europe***

