

JICA TOKYO
International center



E n e r g y P o l i c y
(JFY 2009)

Tokyo, May, 2009.

COUNTRY REPORT
of
Bosnia and Herzegovina



Author:
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Applying Organisation:
**Federal Ministry of Energy, mining
and Industry FBiH**

JP Elektroprivreda BiH d.d.- Sarajevo
Bosnia and Herzegovina

TRAINING PROGRAM AND DIALOGUE
PROGRAM

Bosnia and Herzegovina country data :



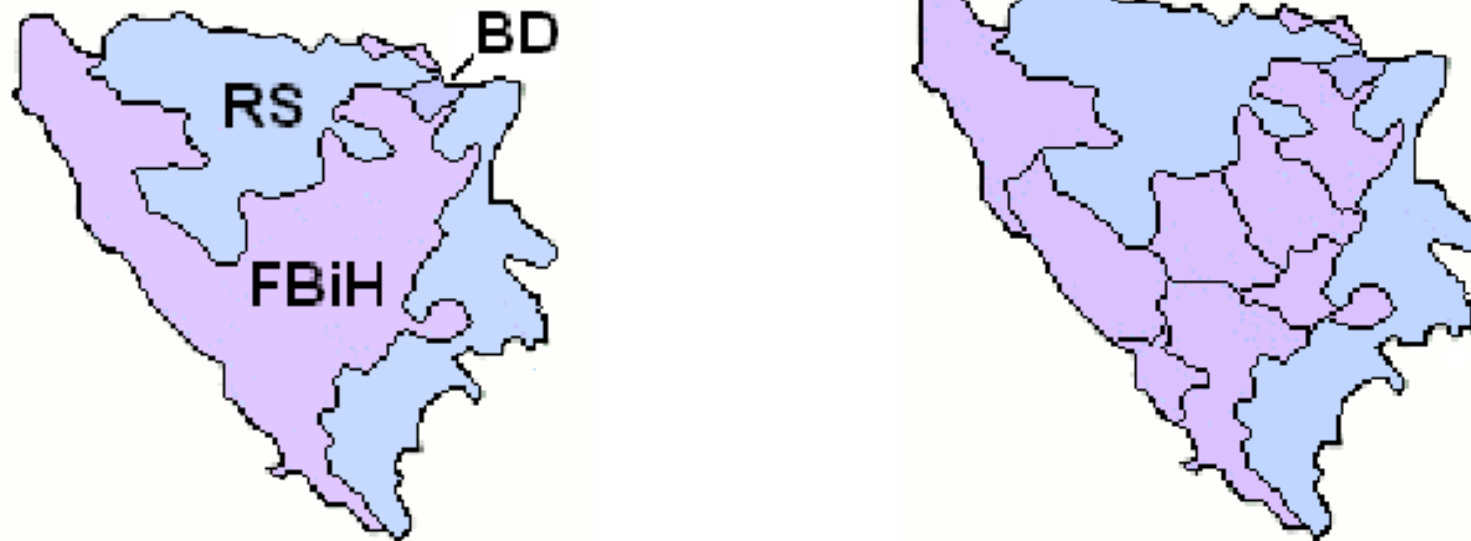
Location of B&H in Europe region

BOSNIA AND HERZEGOVINA IN BRIEF

Area:	App. 52,280 km ²
Population:	4.59 million
Language:	Bosnian, Croatian and Serbian
Capital:	Sarajevo
Biggest cities:	Sarajevo, Banja Luka, Tuzla, Mostar
GDP:	10.5 BEUR
GDP real growth rate:	+6% (2007)
Currency:	Konvertabilna Marka (KM)
Inflation:	4.9% (2007)
Unemployment:	29% (2007, with large grey sector)
Main exports:	manufactured metal and wood manufactures
Main imports:	manufactured goods, machinery and transport equipment



The country is politically decentralized and comprises two governing entities, the Federation of Bosnia and Herzegovina and Republika Srpska, with District Brčko as a de facto third entity.



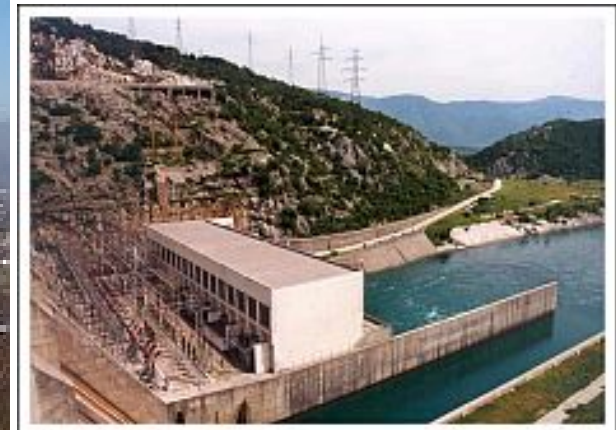
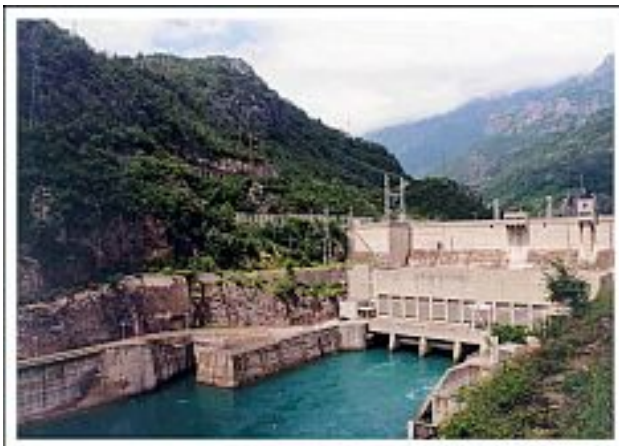
The Federation of Bosnia and Herzegovina consists of ten cantons.

JP Elektroprivreda BiH d.d.- Sarajevo Bosnia and Herzegovina



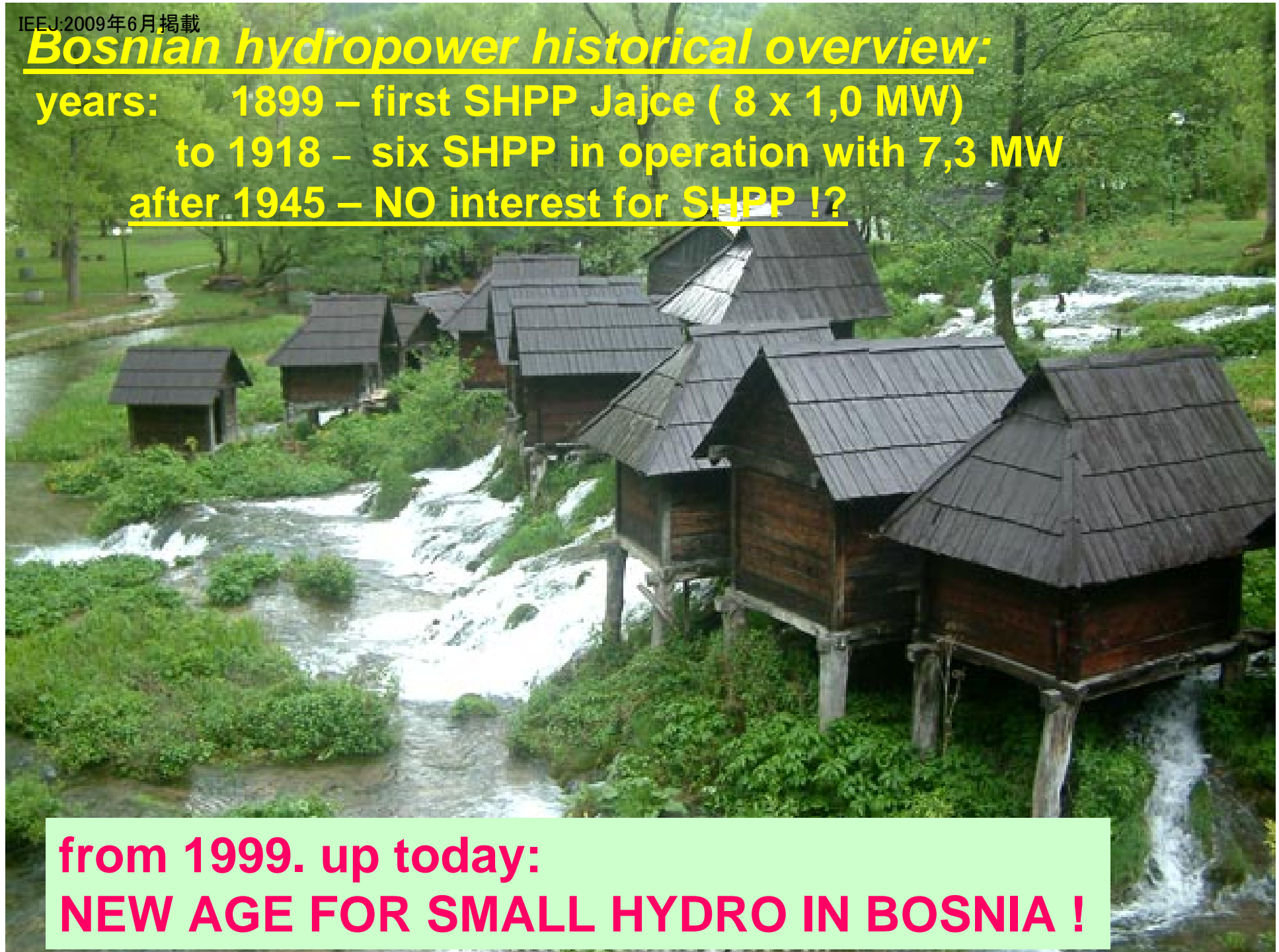
EP BIH: Hydro..... 512 MW
Thermal... 1670 MW

Bosnia: Hydro..... 2000 MW
Thermal... 2150 MW



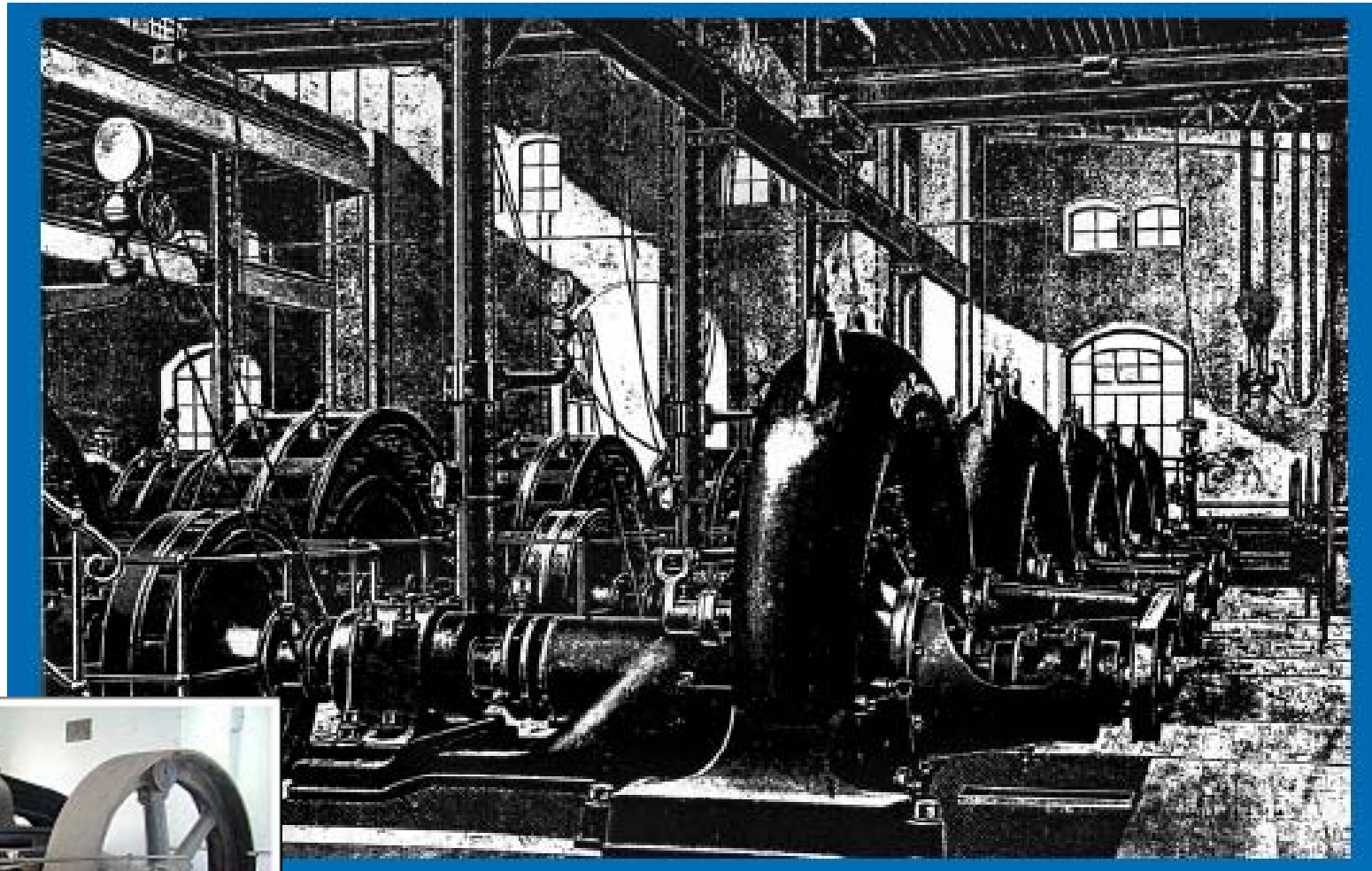
Bosnian hydropower historical overview:

**years: 1899 – first SHPP Jajce (8 x 1,0 MW)
to 1918 – six SHPP in operation with 7,3 MW
after 1945 – NO interest for SHPP !?**

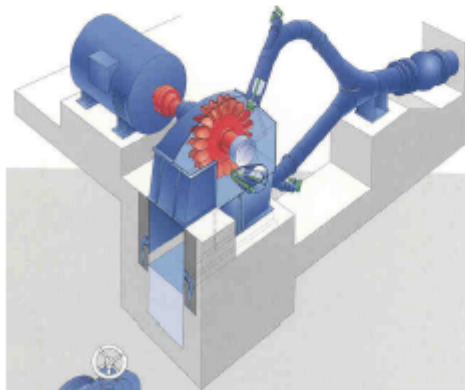
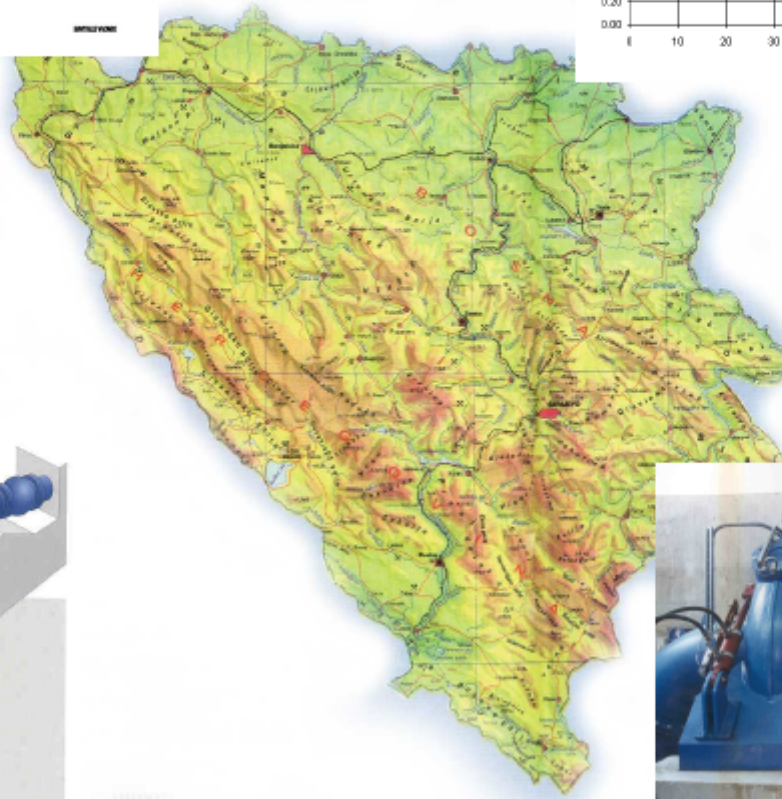
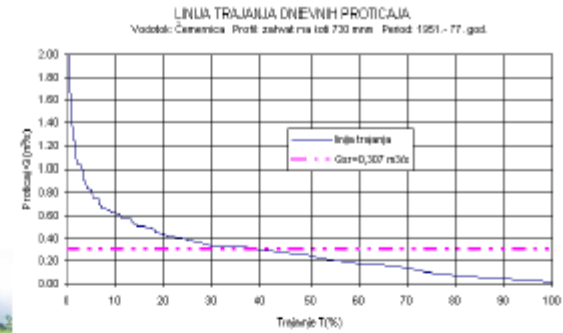
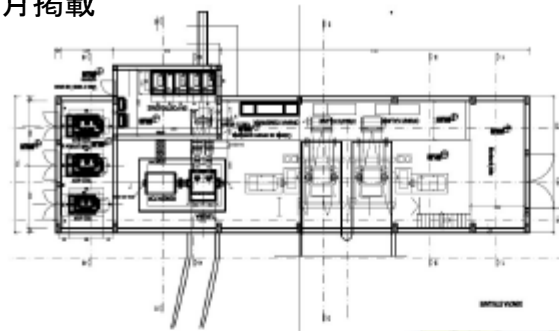


**from 1999. up today:
NEW AGE FOR SMALL HYDRO IN BOSNIA !**

**Year 1899 – Bosnia & Herzegovina:
the first Hydro power plant Jajce (8 x 1,0 MW)**

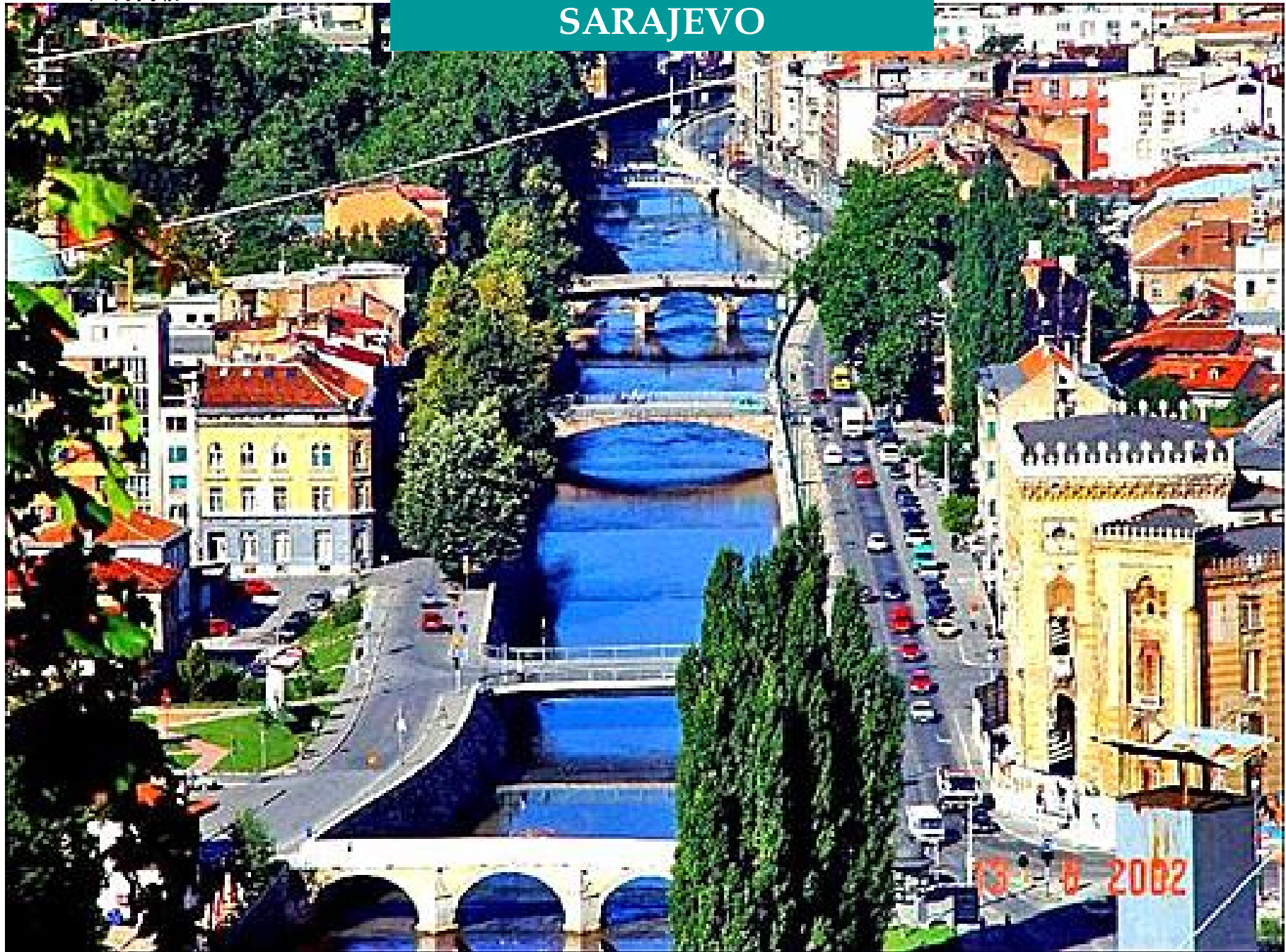


SHPP HRID - SARAJEVO , (1907)

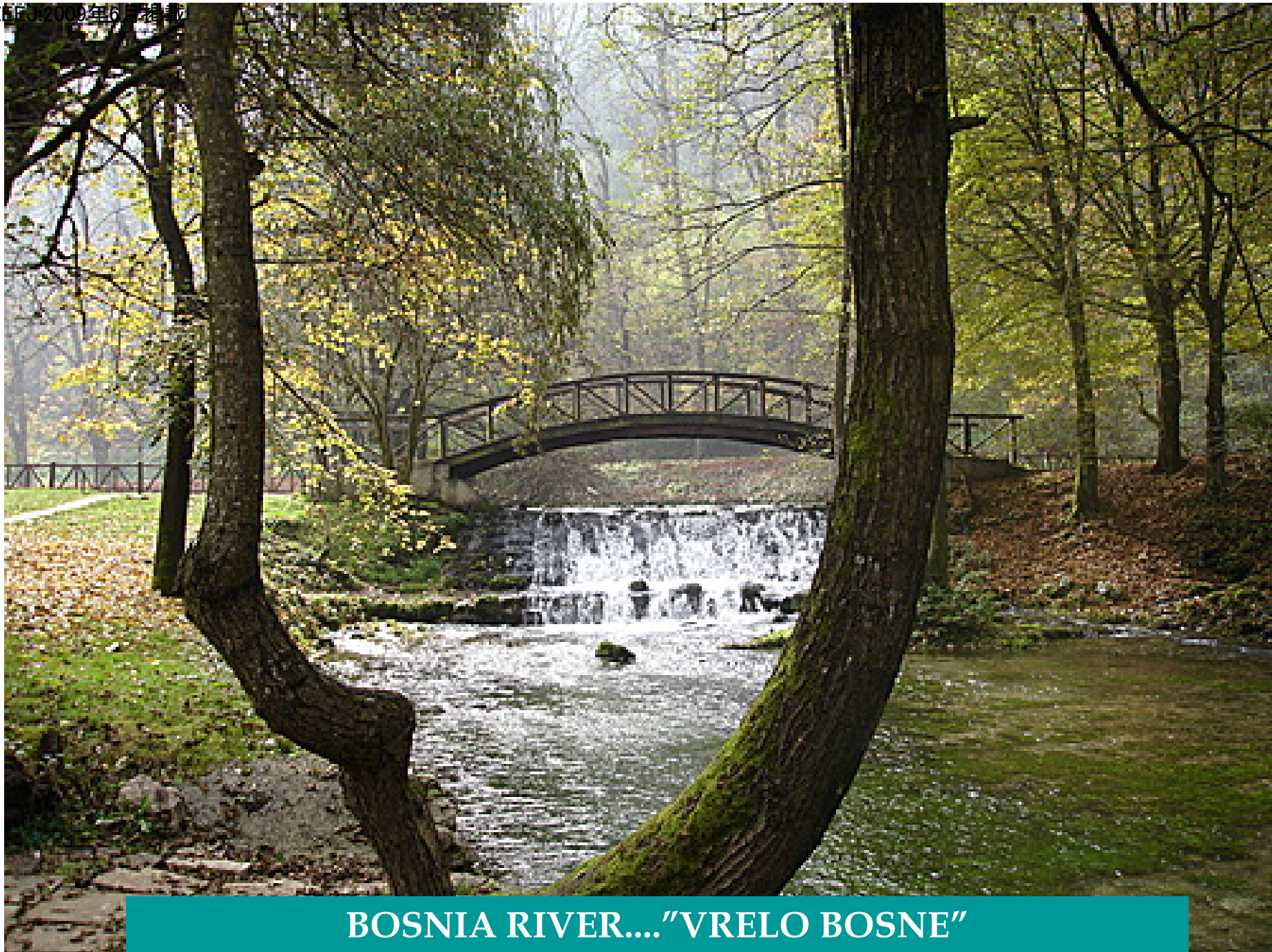


„Possibilities of the hydroenergy potential utilisation for small hydropower power plants construction on the Bosnia & Herzegovina Rivers “

SARAJEVO





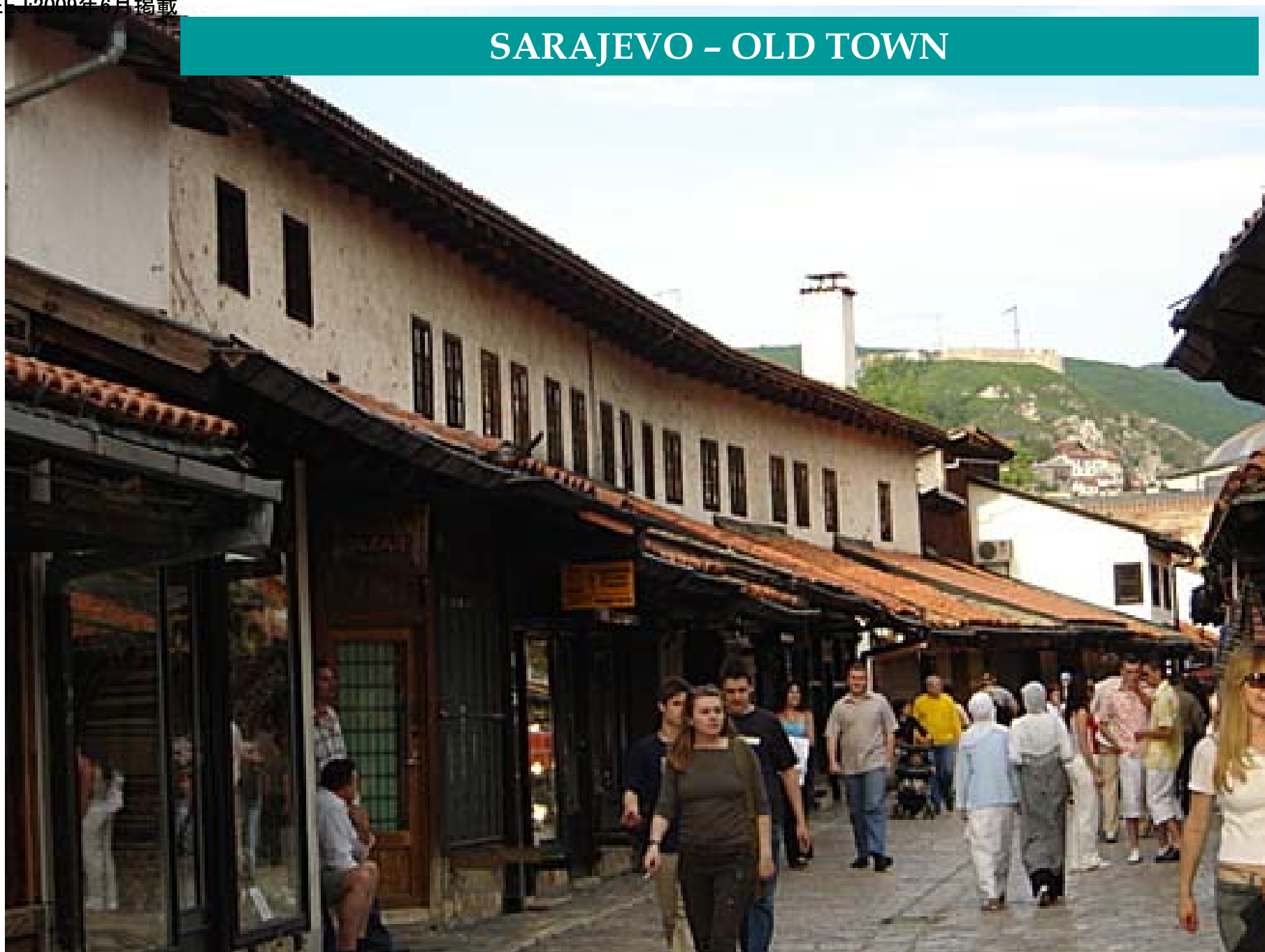


BOSNIA RIVER... "VRELO BOSNE"



MOSTAR - OLD /NEW

SARAJEVO - OLD TOWN







IS IT BOSNIAN PYRAMIDE !??





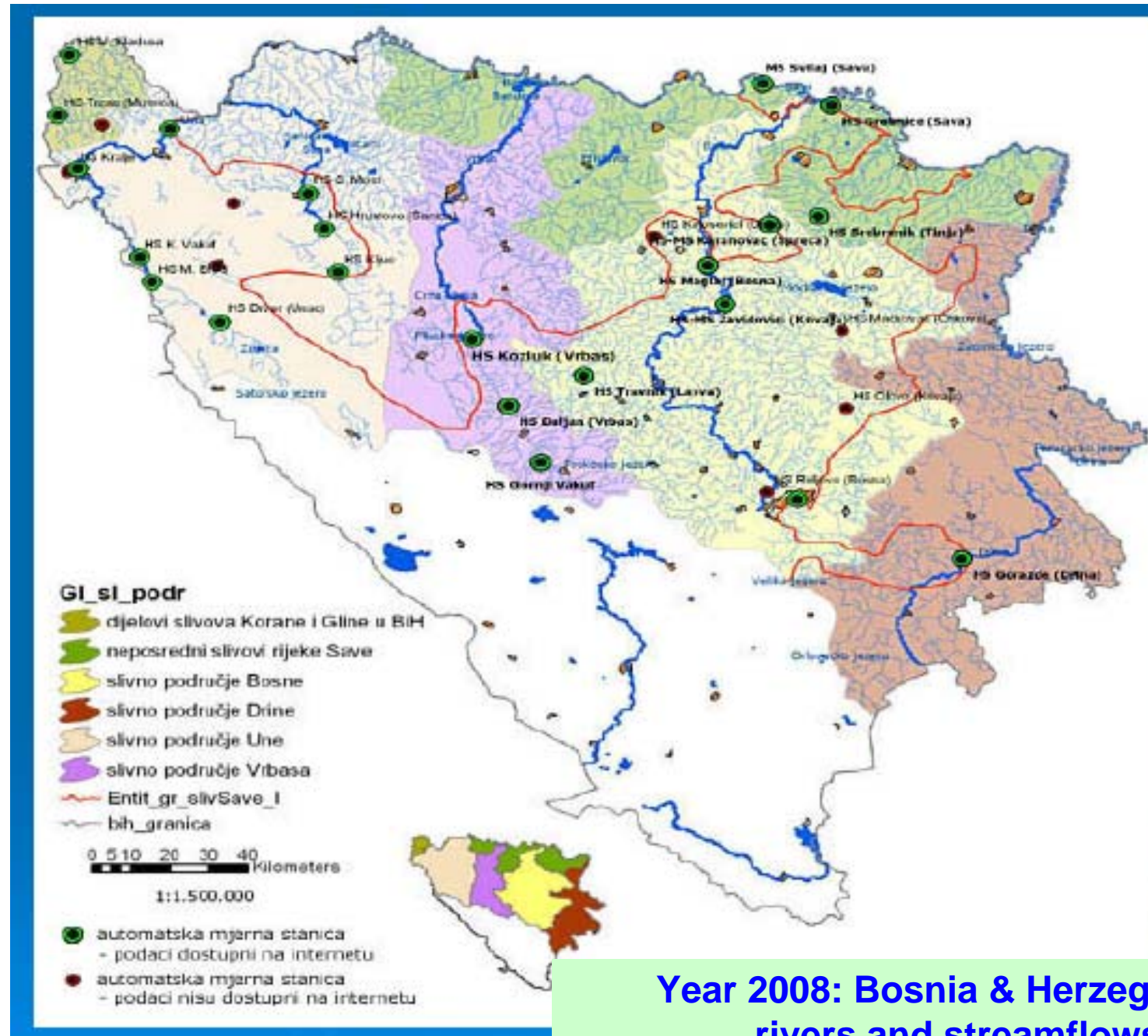


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REGION: WESTERN BALKANS



THE WESTERN BALKANS: ONE REGION, SEVERAL MARKETS

- Thinking regionally can have important synergy effects

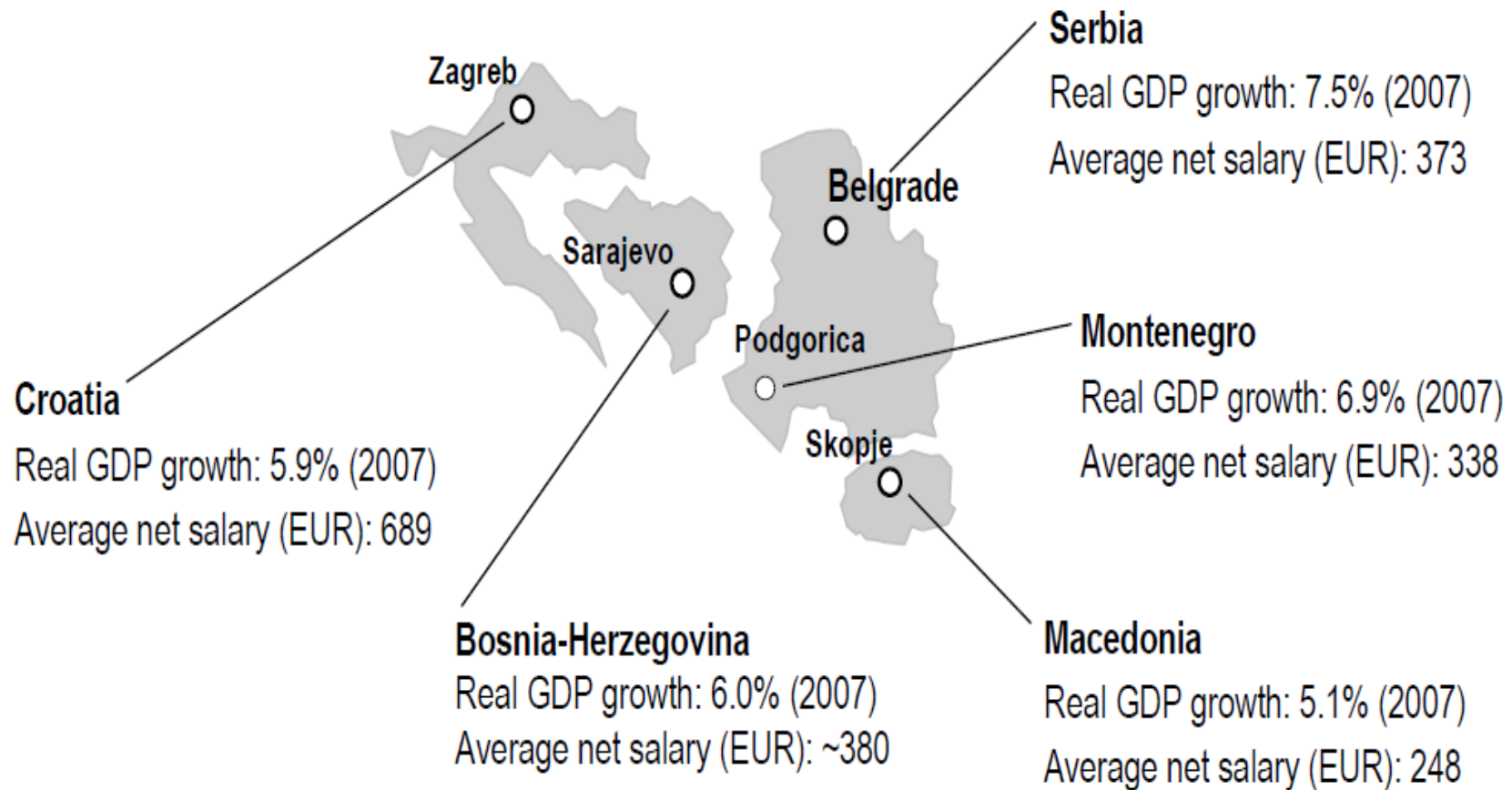


Historic and cultural bonds are strong

- Inter-understandable languages
- Free-Trade Agreements in place
- Ongoing adaptation to EU rules and regulations
- Improving relations and increased trade between the countries

THE MARKETS DISPLAY DIFFERENT CHARACTERISTICS

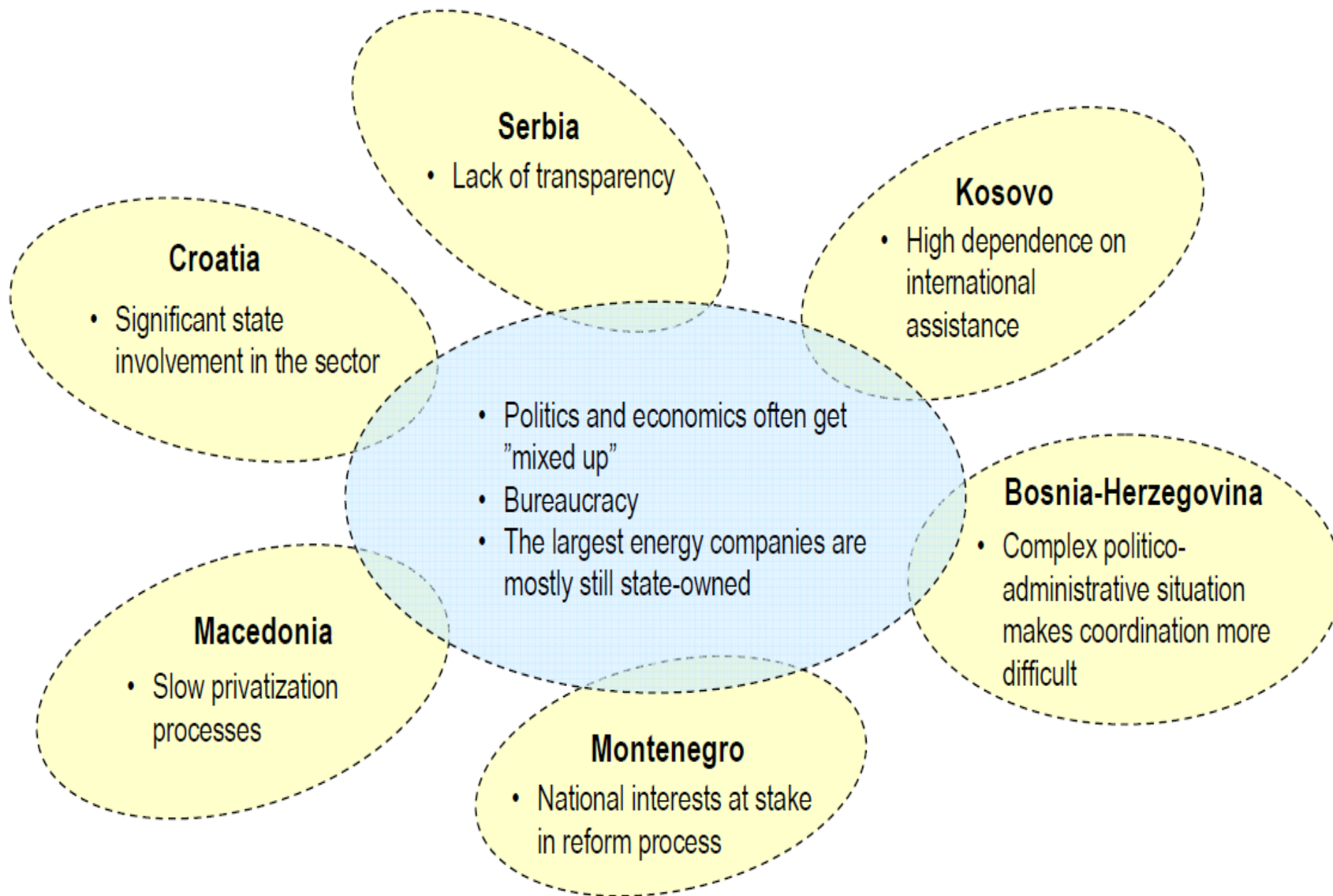
- Croatia has come the furthest on the road to EU-integration



INVESTMENT OPPORTUNITIES IN COAL POWER AND RENEWABLE ENERGY

Country	Primary investment opportunities
Serbia	<ul style="list-style-type: none">• Coal-fired power plants• Coal mines• Hydropower
Bosnia	<ul style="list-style-type: none">• Coal-fired power plants• Coal mines• Hydropower
Macedonia	<ul style="list-style-type: none">• Coal-fired power plants• Hydropower
Montenegro	<ul style="list-style-type: none">• Hydropower
Kosovo	<ul style="list-style-type: none">• Coal-fired power plants• Coal mines
Croatia	<ul style="list-style-type: none">• Hydropower• Biofuel

REGIONAL CHALLENGES IN THE ENERGY SECTOR

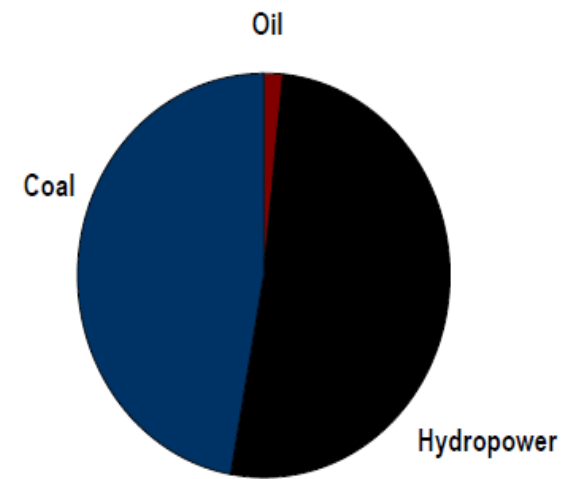


BOSNIA AND HERZEGOVINA: AGENDA

- **Energy balance**
- Deposits and assets
- Trends & tendencies

BOSNIAN ENERGY PRODUCTION IS BASED ON COAL AND HYDROPOWER - Infrastructure damaged during the war is being reconstructed

- Before the war, energy production had an important part in the Bosnian economy with an 8% share of the country's GDP in 1992
- The war led to disruptions in production and supply, as well as the destruction of much of the infrastructure
- Energy production and distribution is today being run separately in the country's two entities; FBiH and RS
 - Serious deficits in energy efficiency
- Production of electricity today is almost exclusively based on coal and hydropower. Hydropower potential is not being fully used.



Hydropower plants are mostly located in the RS entity

BOSNIA AND HERZEGOVINA: AGENDA

- Energy balance
- **Deposits and assets**
- Trends & tendencies

COAL DOMINATES ENERGY PRODUCTION IN THE FEDERATION OF BOSNIA AND HERZEGOVINA (FBiH)

- Significant reserves spread around the territory

- Coal is mainly found in the Tuzla basin [1], the Middle-Bosnian basin [2] and the Ugljevik basin [3]
- Political problems and slow reforms means that coordination between the entities in energy production still is on a small scale
- Coal mines are state-owned but overall privatization is picking up
 - Investors have discovered the potential
- Significant investments are being made in thermo-power capacity especially in the RS
 - Entity governments are opening strategic partnerships with foreign companies



OTHER FOSSIL FUELS AND RENEWABLES

- Good potential for hydropower and biomass

- Bosnia's oil and gas deposits are very small and there is no local production. All supplies are being imported, mostly from Russia
- The theoretical hydroelectric energy potential of Bosnia is estimated at 8000 MW. Installed capacity today is 2052 MW and most installations are more than 30 years old
 - There is significant potential for further development
 - Modernization of existing hydropower plants is in the pipeline
 - Ongoing awarding of concessions for construction of small hydropower plants. Significant international interest, also from Scandinavian countries
- Biomass is used for heat production (i.e. firewood)
 - High potential for further development of more sophisticated biomass products since more than 50% of Bosnian territory is made up of forests



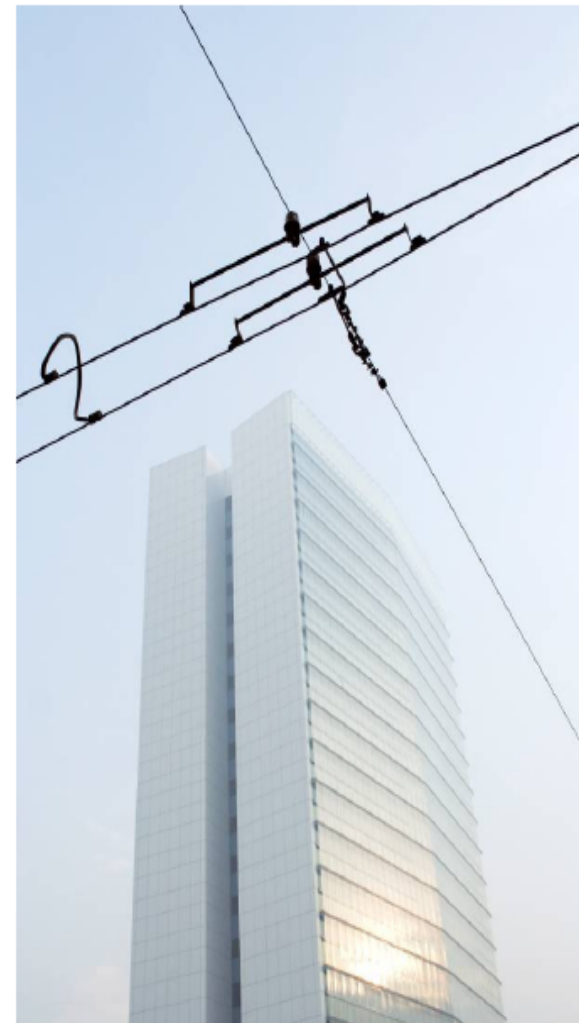
BOSNIA AND HERZEGOVINA: AGENDA

- Energy balance
- Deposits and assets
- **Trends & tendencies**

FOREIGN INVESTMENTS ARE KEY TO FURTHER DEVELOPMENT

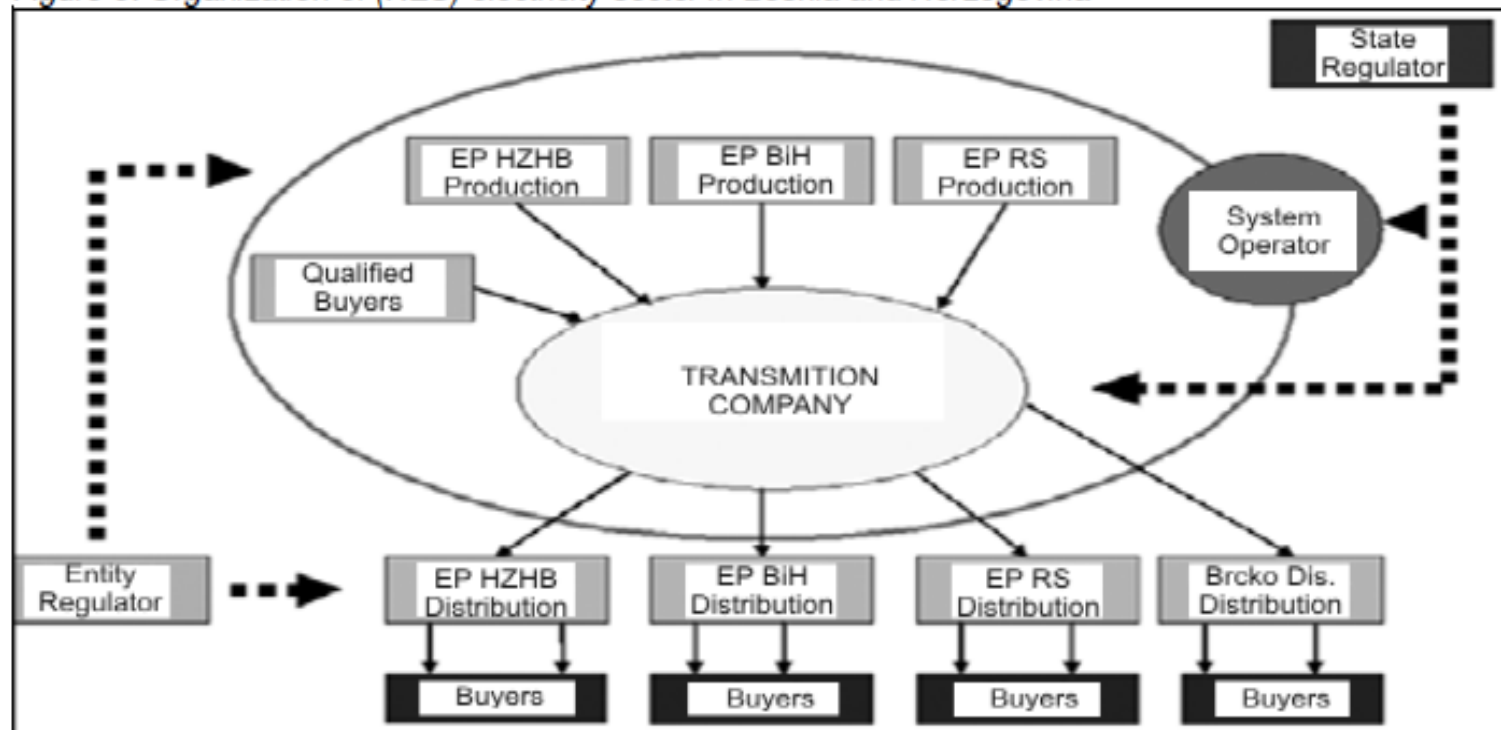
- Liberalization of the energy market is underway

- The development of the Bosnian energy market is dependent on investments in new and existing infrastructure
 - The main component of the country's energy strategy is attracting foreign investors
- Liberalization of the energy market is key to success
- Increased energy efficiency, environmental protection and convergence with European standards are medium-long term goals
- Investments to be made both in renewable energy (hydropower, biomass) and existing thermo power plants
- To cover rising energy needs, existing coal mines are to be modernized and new mines to be opened



Current organization of the sector is presented in the figure below:

Figure 6: Organization of (RES) electricity sector in Bosnia and Herzegovina



4.5 Market Indicators

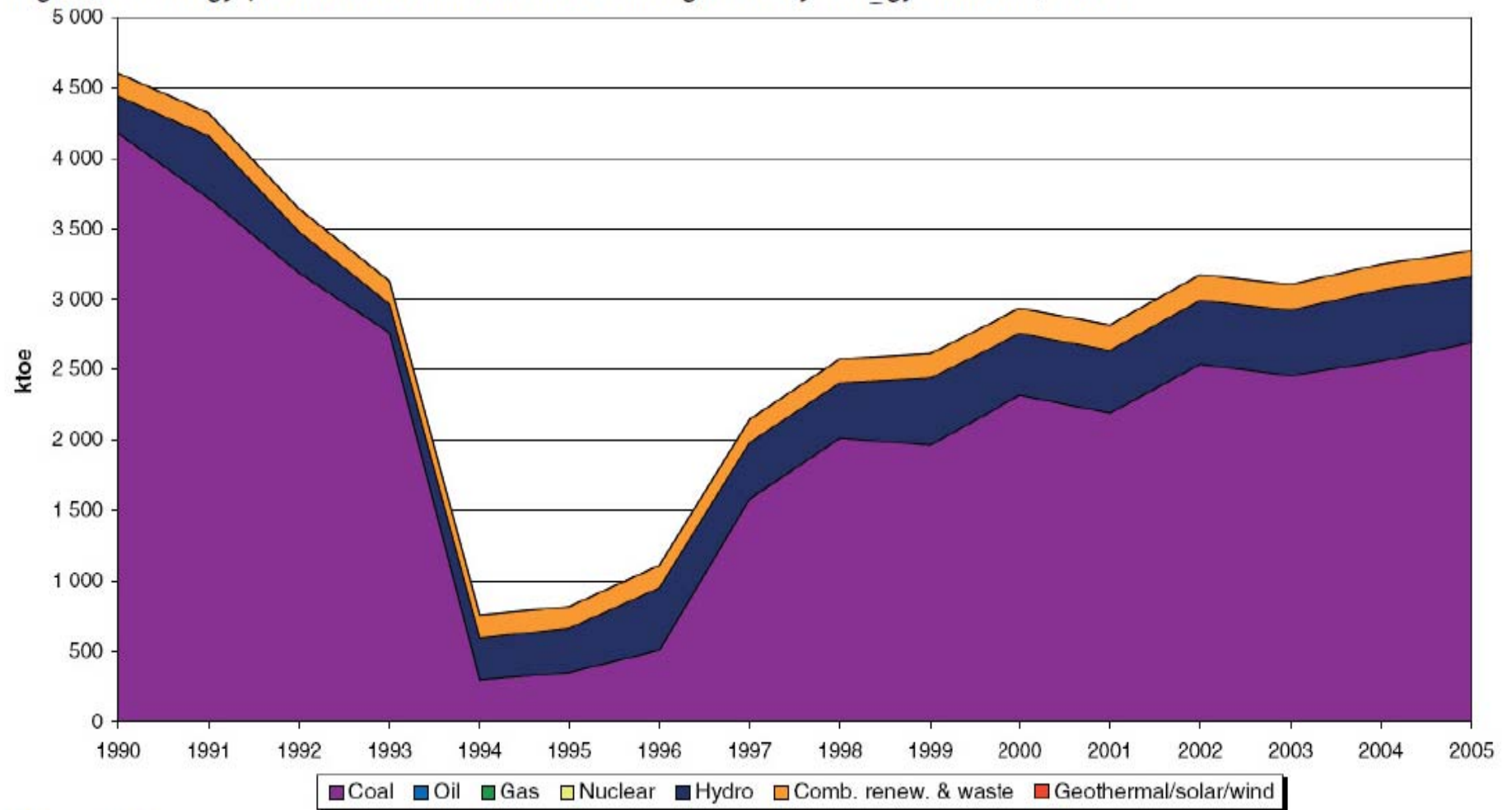
4.5.1 Consumption and demand

The total energy needs in household, industry and services sectors in 2005 amounted to 121.81 PJ. As for the electricity consumption and demand, projections are presented in the following table.

Table 21: Final Electricity Demand in BIH

Final Electricity consumption				
GWh	2005	2010	2015	2020
Industry	3780.2	4767.3	5850.8	6973.7
Transport	28.5	95.6	158	223.2
Household	4104.5	4544.8	4970.9	5362.2
Services	1747.8	2150.8	2703.6	3324.3
Total Final	9661.0	11558.5	13683.2	15883.4

Figure 7: Energy production in Bosnia and Herzegovina by energy sources, 2005



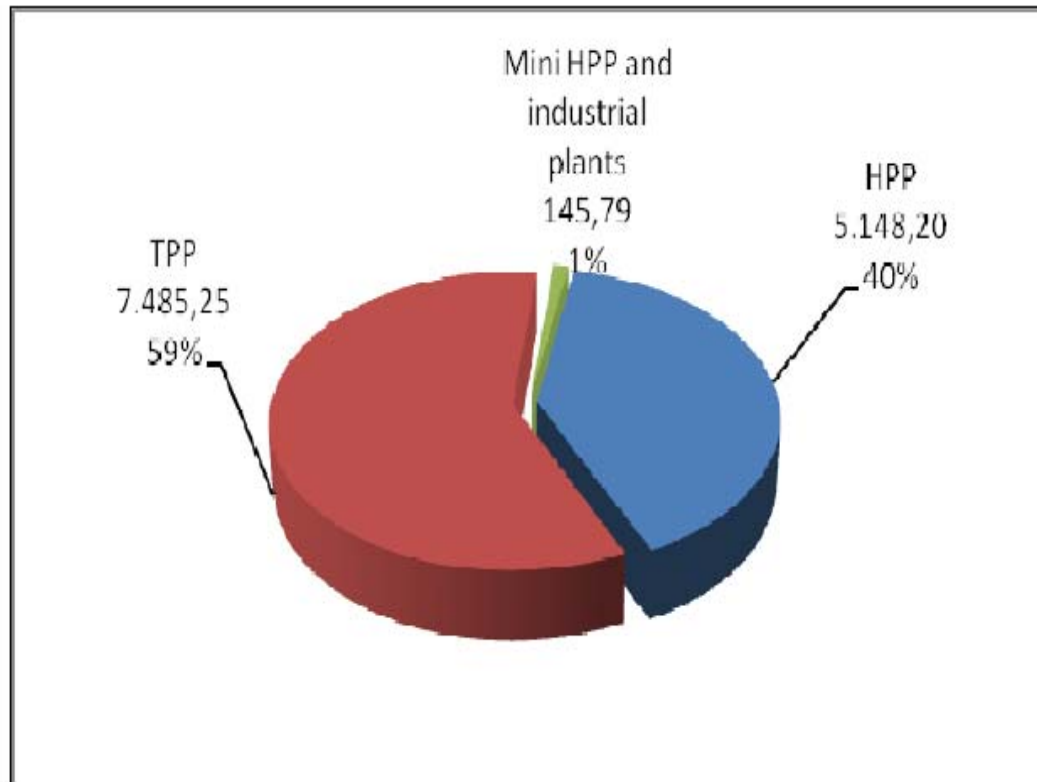
Source: IEA

Table 22: Current production capacities in HPP and TPP in BIH

Hydro Power plants	Capacity of power unit (MW)	Total installed capacity (MW)	Thermo power plants	Installed capacity (MW)	Available capacity (MW)
Trebinje I	3x60	180	Tuzla	779	709
Trebinje II	8	8	G1	32	29
Dubrovnik	2x105	210	G2	32	29
Capljina	2x210	420	G3	100	91
Rama	2x80	160	G4	200	180
Jablanica	2x25+4x30	170	G5	200	180
Grabovica	2x58,5	117	G6	215	198
Salakovac	3x70	210	Kakanj	578	514
Mostar	3x25	75	G1,G2,G3 and G4	4x32	4x29
Jajcel	2x30	60	G5	110	100
Jajce II	3x10	30	G6	110	90
Bocac	2x55	110	G7	230	208
Visegrad	3x105	315	Gacko	300	276
Pec-Mlini	2x15	30	Ugljevik	300	279

Total production of electricity in 2006 was 12.770,24 GWh while total consumption was 12.006,60 GWh. Bosnia and Herzegovina is net exporter of electricity.

Figure 8: Structure of electricity production, 2006



The largest share in electricity production in 2006 was from coal (59 percent), and next to coal was hydropower (41 percent).

Source: Energy Balance for 2006, NOS BiH

4.5.3 Main market players

Main players and bodies in the energy sector in BiH are:

- Elektroprivreda Bosne i Hercegovine- EPBiH (Power Utility of Bosnia and Herzegovina),
- Elektroprivreda Hrvatske Zajednice Herceg-Bosne- EPHZHB (Power Utility of Croatian Community in Herceg-Bosna),
- Elektroprivreda Republike Srpske – EPC (Power Utility of the Republic of Srpska),

Electricity companies are in majority ownership of entities – Federation of BiH (EP BiH and EP HZHB) and Republic of Srpska (ERS). The power companies are interconnected but there is no competition among them; they are virtual monopolies within their exclusive ethnically based service territories. As a result, although current electricity balance shows that BiH is a net exporter of electricity, there are substantial differences regarding balance between electricity generation and consumption among three electricity companies

Power Utility of Bosnia and Herzegovina (EPBiH) is the largest player in the country. It is located in Federation of BiH and has 646.000 customers, out of which 90% are households.

Second company in Federation of BiH is Power Utility of Croatian Community in Herceg-Bosna. It has 168.000 customers (app. 152.000 households). Production capacities of EPHZHB cannot satisfy the needs of its customers, and this company is importing electricity.

4.5.4 Characteristics of the market in terms of quality and price

EPBIH

- 4,687,718 MWh quantity of electricity delivered to domestic market
- 1,093,495 MWh quantity of electricity delivered to foreign market
- 5,89 €/kWh average selling price of electricity on domestic market
- 3,30 €/kWh average selling price of electricity on foreign market
- 5,40 €/kWh average selling price of electricity

EPH

- 3,074,687 MWh quantity of electricity sold on domestic market
- 925,115 MWh quantity of electricity sold to foreign buyers
- 4,83 €/kWh average selling price of electricity on domestic market
- 3,81 €/kWh average selling price of electricity on foreign market
- 4,60 €/kWh average selling price of electricity

EPRS

- 2,877,520 MWh quantity of electricity sold on domestic market
- 1,718,230 MWh quantity of electricity sold on foreign market
- 5,26 €/kWh average selling price of electricity on domestic market
- 3,59 €/kWh average selling price of electricity on foreign market
- 4,63 €/kWh average selling price of electricity

Feed in Tariffs for the Renewable Energy Sources

The document that regulates this area in Federation of Bosnia and Herzegovina is „The decision on methodology of establishment of the level of purchase prices of electric energy from the renewable sources installed power of up to 5 MW(feed in energy prices)“.

Articles II and III of this document state:

Article II

“Producer of the electrical energy from the renewable sources„ means the physical or legal entity which in the individual producing object, total installed power of up to 5 MW, produces electrical energy using the renewable sources of energy.

„Electric energy from renewable sources“ means electric energy produced from renewable non-fossil sources, which are renewed fully or partially, such as, but not limited to, energy of the water streams, wind and sun, geothermal, wave and tide sources, as well as biogas and biomass.

„Biomass“ means the product from the agriculture, forestry, agriculture, forestry and industrial food production waste, wood processing waste, cork waste and similar.

Article III

Methodology of establishment of the purchase prices of electric energy from the renewable sources

In accordance with this Decision, establishment of the level of the purchase price of the electric power from renewable sources installed power of up to 5 MW will be done by appliance of corrective coefficients to the amount of the current tariff item for active energy, higher seasonal and larger daily, for category of consumption on 10(20) kV voltage from Tariff items for sales of electric energy at the territory of Federation of BiH („Official Gazette of Federation BiH“, number 57/00).

Tariff for EP BiH is: 5,8 €/KWh on the 10KV voltage

Tariff for EPHZHB is: 6.6 €/KWh on the 10KV voltage

In accordance with the previous item, the relative amounts of the coefficients of correction are established for:

- Small hydro power plants 0,80;
- Power plants on biogas from waste dumps and biomass 0,77;
- Power plants on wind and geothermal sources 1,00;
- Power plants on solar energy 1,10.

In case of reduction of the amount of the current tariff item 1. of this paragraph, coefficients of correction from the item 2. of this paragraph are increased for the percentage of the reduction.

In case of the increase of the amount of the current item from this paragraph, coefficients of correction of item 2. of this paragraph are not subject to changes.

Figure 9 : RES Opportunities – Sector/Country Overview

Renewable energy opportunities for Dutch SMEs	Croatia	Serbia	Bosnia and Herzegovina
Biomass	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Hydro		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Geothermal			
Wind	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Solar	<input checked="" type="checkbox"/>		

Some of the projects that can be realized in these countries with short payback period are:

- Utilization of available bio waste in industry and agricultural farms;
- Wind projects;
- Revitalization of old/non-functional small hydro power plants.

Where eligible, JI/CDM schemes should be included.

Regulatory Framework – Bosnia and Herzegovina

Laws related to Employment

- Cleansed text of the Labour Law of FBiH (Official Gazette of FBiH 43/99, 32/00, 29/03)
- Labour Law of RS (Official Gazette of RS 38/00)
- Decision on Amending the Labour Law of RS (Official Gazette of RS 40/00)

Set of Public Procurement Laws related to procurement procedures

- Public Procurement Law of Bosnia and Herzegovina (OGBiH 49/04)
- Amendments to the Public Procurement Law (OGBiH 19/05)
- Amendments to the Public Procurement Law (OGBiH 52/05)
- Amendments to the Public Procurement Law (OGBiH 52/05)
- Zakon o izmjeni Zakona o javnim nabavkama BiH ("SgBiH" broj 8/06)
- Zakon o izmjenama Zakona o javnim nabavkama BiH ("SgBiH" broj 24/06)
- Zakon o dopunama Zakona o javnim nabavkama BiH ("SgBiH" broj 70/06)

The Laws regulating the issue of concessions in BiH are:

- The Law on Concessions of BiH (Official Gazette of BiH, no. 32/02)
- The Law on Concessions of the Federation of BiH (Official Gazette of FBiH, no. 40/02)
- The Law on Concessions of RS (Official Gazette of RS, no. 25/02) and
- Cantonal Laws on Concessions.

Import regulations

- Tax Laws
- Law on Amendments and Supplements to the Law on Value Added Tax ("Official Gazette of the Federation of Bosnia and Herzegovina, 35/05)
- Law on Excise Duties ("Official Gazette" of the Federation of Bosnia and Herzegovina, 62/04)
- Law on the Corporate Income Tax ("Official Gazette" of the Federation of Bosnia and Herzegovina, 32a/97)
- Law About the Changes and Additions to the Law on the Corporate Income Tax ("Official Gazette" of the Federation of Bosnia and Herzegovina, 29/00)
- Law on Profit Tax ("Official Gazette" of the Republika Srpska, 51/01)
- Law on Value Added Tax ("Official Gazette" of the Federation of Bosnia and Herzegovina, 09/05)
- Trade Laws
- Trade conditions are recognising latest set of INCOTERM 2000.
- Decision on Implemental Regulation on the Law on Customs Policy ("Official Gazette" of Bosnia and Herzegovina, 63a/04)
- Decision on Harmonizing and Establishing Customs Tariffs ("Official Gazette of Bosnia and Herzegovina, 91/05)
- Law on Amendments to Foreign Trade Policy Law ("Official Gazette" of Bosnia and Herzegovina 35/04)
- Customs Policy Law
- Law of Amendments and Addenda to the Law on Customs Policy ("Official Gazette" of Bosnia and Herzegovina, 51/06)
- Customs Tariffs

Bosnia and Herzegovina

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www.fipa.gov.ba

NOS
(Independent System Operator)
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Fax: 387 (0)33 72 04 94
www.nosbih.ba

DERK
(State Electricity Regulatory
Commission)
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Fax.: + 387 35 302077
E-mail: info@derk.ba
www.derk.ba

FERK
(Regulatory Commission for
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Bosnia and Herzegovina)
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REERS
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www.reers.ba

EPBiH
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www.elektroprivreda.ba

EPHZHB
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ERS
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**Federal Ministry of Energy, mining
and Industry FBiH**

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Bosnia and Herzegovina**

THANK YOU FOR ATTENTION !