

Ecological distribution conflicts and sustainability: lessons from the post-socialist European semi-periphery

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Abstract Understanding how ecological distribution conflicts (EDCs) have changed through the transition from socialism to capitalism in the European semi-periphery can provide valuable lessons for global efforts towards sustainability. This article traces the social, political and economic origins of EDCs, and evaluates the outcomes of the 74 most illustrative cases of such conflicts from five ex-Yugoslav countries reported in the Environmental Justice Atlas (EJAtlas): Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, and Serbia. It analyses how the occurrence and characteristics of the conflicts changed through three distinct phases in the region's history, i.e., the periods of Socialism (1945–1990), Transition (1991–2003), and EU-accession (2004–present), each characterised by different socio-metabolic, political and institutional profiles. The article also evaluates the level of environmental justice (EJ) in the region. The greatest diversity of conflicts were identified in the last phase, a period characterised by an increase in material and energy flows through a number of controversial projects, many of which arose as a result of 'modernisation'. Fortunately, the resulting 'unsustainabilities' were immediately politicised by EJ movements, whose composition, demands and success differed in line with changing dominant political and

institutional conditions. Currently, the EJ movements in ex-Yugoslavia are led by national NGOs, while urban movements embrace the broadest spectrum of socio-environmental issues. Timely mobilisation and support from local authorities have been crucial for the successful resolution of conflicts. However, EJ movements have proved impotent to resist projects deemed to be of national economic interest in contexts characterised by high levels of corruption and low political accountability. Stronger alliances among different movements would assure more EJ and lasting sustainability solutions in the region.

Keywords Ex-Yugoslavia · Post-socialism · Semi-periphery · Social metabolism · Ecological distribution conflicts · Environmental Justice Atlas

Introduction

Industrial economies need new territories to support their growing/changing social metabolism, defined as the continuous exchange of energy and materials with the environment (Fischer-Kowalski et al. 1997; Martinez-Alier 2009). These territories are known as commodity frontiers and can lie inside or outside national borders (Moore 2000). Intensive extraction of resources, waste disposal, and appropriation of land are typically accompanied by heavy environmental and social burdens (Martinez-Alier et al. 2010). The unequal distribution of such burdens often produces ecological distribution conflicts (EDCs), i.e., social mobilisations by local communities against existing or likely impacts of particular economic activities on their physical environment, health, social or economic status (Martinez-Alier 1995; Martinez-Alier and O'Connor 1996; Martinez-Alier 2002).

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Achieving environmental justice (EJ) is often a goal of these mobilisations. The concept of EJ emerged in the United States in the 1980s in relation to struggles against the dumping of toxic waste in urban African-American areas (Bullard 1990). Despite the applicability of this concept in many situations of uneven distribution of environmental and social risks worldwide, the definition of EJ depends on the place, time, and perspectives of the community at risk (Gottlieb 2009; Martinez-Alier et al. 2016). Different formal and informal civil society groups, such as grassroots initiatives, religious institutions, youth organisations, non-governmental organisations (NGOs), and trade unions who fight for EJ, are generically called environmental justice organisations (EJOs) (Lukey 2002; Barca 2012; Colsa Perez et al. 2015; Martinez-Alier et al. 2016). By demanding the transformation of entrenched economic and political structures, EJOs usually bring forward the issues of class, poverty, ethnicity, race and gender that underlie many local conflicts (Carter 2007; Temper et al. 2015).

So far, most studies on EDCs and EJ have been focused on the world's periphery (e.g., Tschakert 2009; Urkidi 2010). Fewer of such investigations address semi-periphery societies that are geographically, economically and politically positioned between core and periphery regions (Wallerstein 1979; Chase-Dunn and Hall 1997). The semi-periphery strives to become core through further industrialisation and economic diversification (Tausch 2010), which changes/increases its social metabolisms. Semi-periphery countries have transformative and reform potentials in terms of technology, and social and organisational structure. The semi-periphery is where dominant (core) and marginalised (periphery) discourses and practices meet and merge, allowing for new sustainable solutions to be designed (Haberl et al. 2011; Velicu 2012; Domazet and Ančić 2017).

In Europe, the semi-periphery comprises recently acceded as well as associated, aspiring members of the European Union (EU) (Hobsbawm 1995; Chase-Dunn and Hall 1997), including the five post-socialist ex-Yugoslav countries that are investigated in this article: Bosnia and Herzegovina (BiH), Croatia, Macedonia, Montenegro, and Serbia.¹ Although varying in their cultural, historical, and religious circumstances, as well as economic performance, these countries share a common geopolitical past of Yugoslav-style socialism, a legacy of civil war, the transitional character of their economies, and EU integration as their main political aspiration (Lampe 2000; Todić 2011; Börzel and Fagan 2015). These countries underwent a

complex process of transition from socialism to capitalism that involved a shift to constitutional democracy, the construction of a market economy, state-building and the development of civil society (Baker and Jehlička 1998). To date, only Croatia is a full EU member. Macedonia, Montenegro and Serbia are official candidate countries and have started with accession negotiations, while BiH is recognised as a potential candidate country and is involved in the Stabilisation and Association process² (European Commission (EC) 2017). Like the rest of the European semi-periphery, these five ex-Yugoslav countries are less wealthy and suffer from greater internal income inequalities than EU countries (United Nations Development Programme (UNDP) 2011; Dolenc et al. 2014). Although the gross domestic products (GDP) of the Yugoslav successor states dropped further as a result of the financial crisis of 2008 (World Bank (WB) 2015), their human development indexes (HDI) have been experiencing steady growth. Currently, these nations are categorised as high or very high development countries (United Nations Development Programme (UNDP) 2015; Domazet and Ančić 2017). In addition, the ex-Yugoslav republics enjoy high levels of material development with a lower environmental impact than European core nations³ (Domazet and Marinović Jerolimov 2014).

In line with the leading hypothesis of Environmental Justice Organisations, Liabilities and Trade (EJOLT) (2011) that “one of the causes of the increasing number of EDCs around the world is the changing metabolism of the economy” (Martinez-Alier et al. 2016, p. 731), and in accordance with previous research on EDCs (see Scheidel et al. under review), this article is based on the premise that the increased occurrence of EDCs and changes in the characteristics of these conflicts in ex-Yugoslavia are a response to many unsustainabilities⁴ provoked by a changing/growing social metabolism during the socialism to capitalism transition. For mobilisation to occur, according to this hypothesis, those unsustainabilities must be politicised, i.e., promoted as political issues by civil society, whether through deliberate action or spontaneously in immediate response to threats (Carter 2007).

This hypothesis is tested in this article by analysing 74 most illustrative cases of EDCs from the recent history (1945–2016) of the five named ex-Yugoslav countries

¹ Slovenia was the first country to separate (peacefully) from Yugoslavia in 1991 and the first to enter the EU in 2007, and was therefore not included in this analysis.

² The policy framework which offers the countries an institutionalised route to EU membership (European Commission (EC) 2012).

³ For example, the historical CO₂ contributions of the semi-periphery have fallen, while some of Europe's core nations have risen to the top of global ranking (Matthews et al. 2014).

⁴ In the light of the global quest for sustainability, the term ‘unsustainabilities’ is introduced here to denote a general category of detrimental social, economic and environmental effects of particular economic activities.

reported in the Environmental Justice Atlas (EJAtlas) database (www.ejAtlas.org). This period is divided into three phases: Socialism (1945–1990), Transition (1991–2003) and EU-accession (2004–present). The article uses the available data on regional social metabolism to provide possible explanations for the increase in the occurrence⁵ of EDCs and changes in the characteristics of these conflicts in ex-Yugoslavia throughout the investigated period. The social metabolism of the region is described with the material and energy flows. Material flows are tracked with a domestic material consumption (DMC) that is equal to domestic extraction of different materials plus imports minus exports (Fischer-Kowalski et al. 2011). Energy flow is expressed in amount of energy consumed by all economic sectors. The occurrence and characteristics of EDCs are also discussed in relation to the dominant regional political and institutional context that set the conditions for the politicisation of socio-environmental issues in each phase. Finally, the article evaluates the level of environmental justice in ex-Yugoslavia and identifies the main commonalities among the cases that have been successful in fulfilling protestors' demands.

Phases in recent ex-Yugoslav political, economic and social history

Phase 1: socialism (1945–1990)

This phase comprises the period from the establishment of the Socialistic Federative Republic of Yugoslavia at the end of the Second World War in 1945 until its dissolution in 1990. Yugoslavia was a single-party federation of six socialist republics ruled by a communist regime: BiH, Croatia, Macedonia, Montenegro, Serbia, and Slovenia. In 1947, Yugoslavia broke with the Stalin-led Soviet Union and developed its own type of socialism with an emphasis on decentralisation, with a substantial degree of economic power delegated to enterprises, and self-management, with workers participating in decision-making in the employing enterprises (Johnson 1972; Denitch 1976; Kukić 2017). Land and fixed assets were expropriated and nationalised, while workers were entitled to a certain portion of the

income derived from such socially owned resources (Kukić 2017).

Economic development in the country was based on urbanisation, industry, mining, and agriculture production for both Western and Eastern markets (Kukić 2017) (see Fig. 1 for the growing material flows in the period of Socialism). With average annual GDP growth of 6.1%, Yugoslavia was among the fastest growing economies in the world during the 1950s and 1960s. Unemployment was low and the educational level of the workforce increased rapidly. In addition, the country had a universal free public health service, a low level of illiteracy, and life expectancy of 72 years (Petak 2003; Boduszyński 2010). Although economic activities provided extensive social benefits for a large number of people, however, they also caused many environmental problems, including soil, air and water pollution (Jancar-Webster 1993; Todić 2011).

In the 1980s, following the end of European growth, an economic crisis erupted in Yugoslavia that resulted in the bankruptcy of many state-owned firms and higher rates of unemployment (Lampe 2000; Baten 2016). This had a disruptive effect on the political situation in the country that was further exacerbated by an imbalance in the level of economic development between the ethnically different federative republics. Until then, the main type of civil society organisations had been socially and politically passive associations related to sports, professions and culture, operating under the regime's control (Sterland and Rizova 2010). The gradual erosion of state power and a greater degree of political liberalisation during the late 1980s enabled the emergence of new social movements, mostly of workers but also including environmental activism (Benderly 1997).

Phase 2: transition (1991–2003)

In the 1990s, ethnic tensions—inflamed by the economic crisis and the demise of the communist idea—escalated into a civil war (1991–1995). As a result, many industrial activities collapsed, which led to some environmental improvements, such as air and water quality (e.g., Krizan and Vojinović-Miloradov 1997). The collapse of the main economic activity, followed by unemployment, rural depopulation and poverty, also resulted in new environmental problems in the region, however, such as the erosion of abandoned fertile land, a high concentration of people in already over-burdened cities, and illegal deforestation (United Nations Environment Programme (UNEP) 2007; Markus-Johansson et al. 2010) (see Figs. 1 and 2 for the rather sharp decrease in material and energy flows during the war). In the 1990s, the 'international community' became involved in the region through a series of interventions, including monitoring, diplomacy,

⁵ The article refers to 'occurrence' and 'characteristics' rather than the absolute number of conflicts. This is due to possible bias in the availability of information, principally arising from the fact that the Internet was the main source of information for the research. More recent conflicts, as well as old but still ongoing conflicts, might be more broadly reported online, for example, than smaller and localised resistances from earlier phases that could only be recuperated from people's memory or other type of media, if they were documented at all.

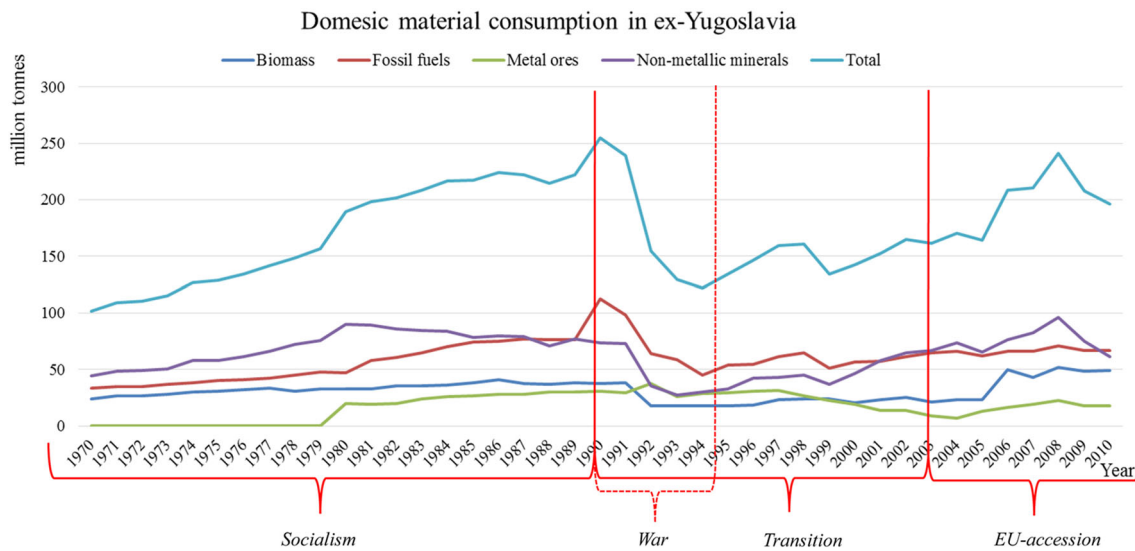


Fig. 1 Material flows (1970–2010) in ex-Yugoslavia Source: own elaboration with data from (United Nations Environment Programme (UNEP) 2015)

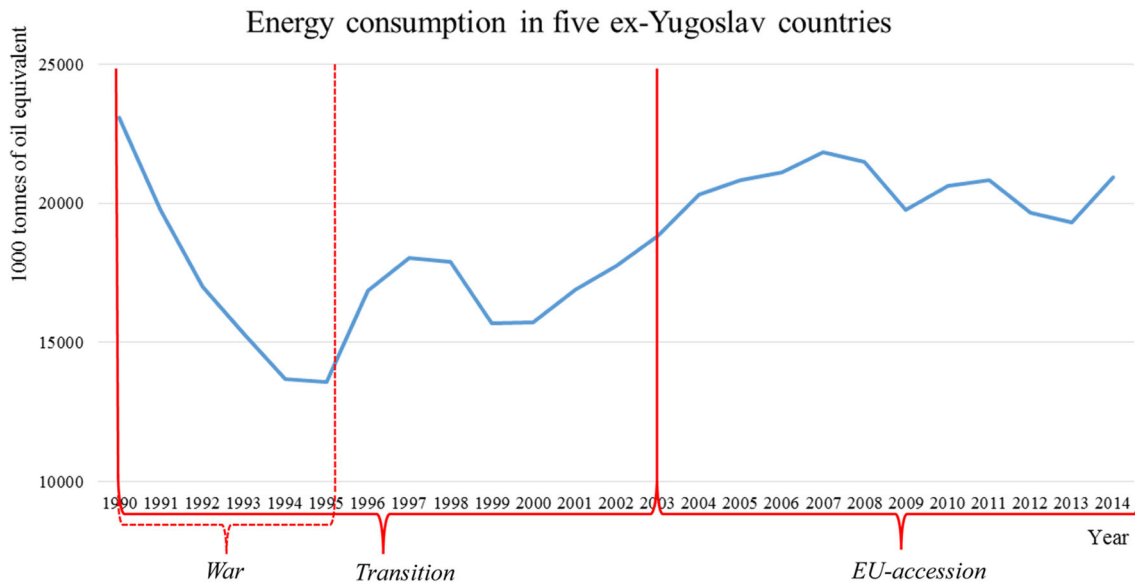


Fig. 2 Energy flow (1990–2014) in five ex-Yugoslav countries Source: own elaboration with data from (EUROSTAT 2016)

humanitarian action, and the staging of troops and advisors (Elbasani 2008).

The years after the war (1996–2003) were characterised by an intense transition to capitalism and multi-party political democracy (Koyama 2003). Economic growth in this phase was supported by financial investments from international donors through reconstruction and development projects, as well as through remittances from abroad. The ex-Yugoslav republics opened up to global trade and became export-oriented (see Fig. 1 for the modest growth in material flows; see Fig. 2 for moderate fluctuations in energy flow in the post-war period). The countries began privatising and restructuring state-owned and socially

owned enterprises, changing old regulations to allow for business development and building new institutions to support a market economy (International Monetary Fund (IMF) 2015). The region maintained some competitive edge through the relatively low cost of labour, its proximity to EU markets, and a lack of enforcement of environmental regulations (Stritih et al. 2007). In this period, the economies of the region grew at rates exceeding the EU average (International Monetary Fund (IMF) 2015).

However, economic growth was followed by an intensification of environmental problems, deficits in national budgets preventing expenditure on environmental protection, an inability to maintain physical and institutional

infrastructures, and persistently high levels of poverty and social inequality (Franičević 2002; Todić 2011). Foreign interventions in this period were primarily intended to prevent further crises, which only contributed to perpetuating the region's peripheral status within Europe (Apostolov-Dimitrijević 2015). The transition reform remained incomplete due to the stalling of structural transformation in the mid-2000s (International Monetary Fund (IMF) 2015). The 'top-down' approach to the transition to a market economy and the evolution of capitalistic institutions, combined with inherited socialist norms in the region, resulted in 'crony capitalism', a variety of capitalism ridden with clientelist relations and situational reactions (Franičević 2002; Cvijanović and Redžepagić 2011; Stubbs and Zrinščak 2015; Upchurch and Marinković 2011). A growing number of informal institutions deriving their power from links with political elites also had a negative effect on environmental governance in the region (Klůvanková-Oravská et al. 2009).

Although the availability of international funds for building the capacity of civil society led to the establishment of many NGOs, including environmental ones, this did not result in a stronger civil society. For a while, professional NGOs and quasi-state institutions (so-called 'elite' organisations) profited from such capacity-building assistance to work on issues selected by Western donors, and grassroots environmental organisations interested in local environmental issues did not benefit (Jancar-Webster 1998; Fagan 2006, 2008). In addition, new authoritarian regimes emerged in the ex-Yugoslav republics, with the most prominent examples being found in Serbia and Croatia (Sterland and Rizova 2010).

Phase 3: EU-accession (2004–present)

The third phase began with the strengthening of the Stabilization and Association Process (European Commission (EC) 2012). This period has been characterised by an acceleration of economic growth and improvements in living standards through the completion of privatisation processes, the development of small- and medium-sized enterprises, and further increases in foreign investments and trade with the EU (Apostolov-Dimitrijević 2015) (see Fig. 1 for the growth in material flows, which could be considered the highest in the observed period, given that numbers in Socialism phase also include data from Slovenia; see Fig. 2 for fluctuations in energy flow during the EU-accession period).

Despite undeniable regional economic growth, however, unemployment is still high, trade imbalances are significant, external debt is rising rapidly (Djurićin and Behara 2011), and disparities in economic power and

development among regions and between citizens are growing (Domazet and Marinović Jerolimov 2014). Environmental policy in the region relies on the 'polluter pays' principle, while the level of payments imposed for environmental damage is low. In addition, there are costly subsidies to loss-making state enterprises, such as the coal industry (Koyama 2003). Even Croatia has had problems achieving effective implementation and enforcement of the EU *acquis* related to sustainable development. The EU intentions to strengthen the capacity of governments to adopt EU environmental policies, resulted in reinforcing traditional forms of hierarchical government (Klůvanková-Oravská et al. 2009; Börzel and Fagan 2015). As in other Eastern European countries, civil society across the ex-Yugoslav region is still dominated by a small number of 'elite' NGOs operating in urban centres and working on EU priorities. These NGOs operate through established political processes that do not include the participation of grassroots networks interested in local environmental issues and in using a more critical mobilisation politics (Hicks 2006; Börzel and Buzogány 2010; Fagan and Sircar 2011).

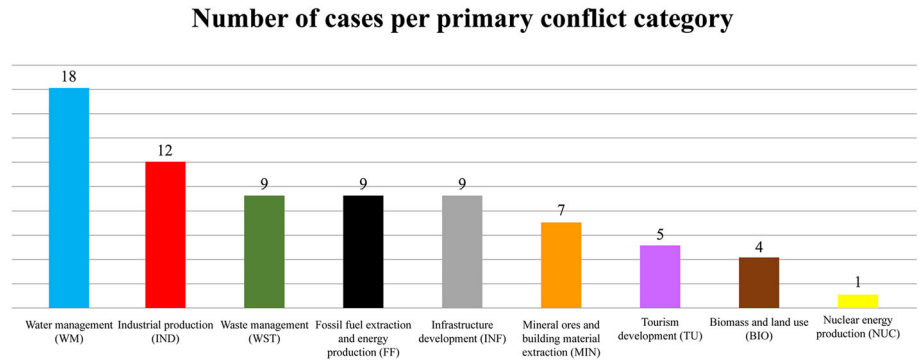
Materials and methods

The identification of existing ecological distribution conflicts was conducted online using the Google search engine, and through consultations with environmental activists. Of around 100 conflicts identified, 65 most illustrative cases were selected for scrutiny according to the following criteria: well-documented (high media coverage, information availability); important (large foreign investments, significant environmental impact, and government as project leader); and diverse (different commodities in dispute). The 65 cases selected were reported in the EJAtlas by the end of 2014, and a further nine were added by local activists in 2014 and 2015. The conflicts still ongoing were updated in 2016 (ending with July). Basic statistical and qualitative content analyses were conducted to scrutinise close- and open-ended questions in the EJAtlas data form (see Temper et al. 2015), respectively.

Results and discussion

The conflicts described here fall within nine primary EJAtlas categories (Fig. 3) and are distributed more or less evenly across the region (Fig. 4). In addition, using only the first choice EJAtlas secondary conflict category (see Temper et al. 2015), the cases were reorganised along the six economic activities (Table 1).

Fig. 3 Number of cases identified per primary conflict category. Colours correspond to those in EAtlas Source: own elaboration



Legend:

Phase 1: Socialism

- WM1 HPP Buk Bjela's impact on the Tara river canyon
- WM2 Re-routing of the Toplodolska river
- WM3 Rovni Dam at the Jablanica River
- WM4 Remediation of Palić Lake
- WM5 Hydro power plant and National park Djerdap
- IND1 The city of Pančevo-Serbia's black spot
- IND2 Pollution of Veliki Bački kanal
- MIN1 Over a century of pollution from the Bor mines

Phase 2: Transition

- WM6 Ecological bomb Port Milena
- IND3 "034 Metal Recycling" polluting Kragujevac
- FF1 Družba Adria Oil Pipeline
- IND2 Regional Landfill Lečevica
- FF2 Relocation of the Vreoci village, Kolubara coal basin
- MIN2 Asbestos contamination from Salanit-Vranjic
- MIN3 Massive sediment extraction from the River Drava
- MIN4 Gravel and Sand Extraction from the Drina River
- NUC1 Nuclear Waste Disposal at Trgovska gora

Phase 3: EU-accession

- WM7 HPP Dabar
- WM8 Battle against small hydro for Sutjeska
- WM9 Hydroelectric projects on Vrbas River
- WM10 HPP Medna on Sana River
- WM11 HPP Lešće on the Dobra River
- WM12 HPP Lukovo Pole, National Park Mavrovo
- WM13 HPP Boškov Most, National Park Mavrovo
- WM14 Wastewater treatment collector in Botun
- WM15 HPP on the River Komarnica
- WM16 HPPs on the River Lim
- WM17 Pollution of Begejac channel, Kula
- WM18 Ten HPPs on the River Ibar
- IND4 ArcelorMittal steel production factory, Zenica
- IND5 Air pollution from Makstil AD, Skopje
- IND6 Pollution from the Topilnica smelter, Veles
- IND7 Air pollution from Jugohrom-Jegunovce
- IND8 Pollution from Nikšić Steel Factory
- IND9 Air pollution from brick factory 'SPREMO'
- IND10 Prahovo pyrite cinder dump site
- IND11 Vital AD polluting Vrbas
- IND12 Lead smelter in Zajača
- WST2 Illegal dumping of organic waste Travnik
- WST3 Waste Incinerator in Resnik, Zagreb
- WST4 Vasove Vode Illegal Landfill
- WST5 Military Waste Destruction, Nikšić
- WST6 Illegal landfill in Martinaj village-Plav Gucinje
- WST7 Unsanitary landfill Vrtijeljka
- WST8 Municipal Waste in Kraljevo
- WST9 Waste Management in Subotica



- FF3 Thermal Power Plant Tuzla
- FF4 Thermal power plant Stanari
- FF5 Thermal power plant Ugljevik 3
- FF6 Solar Power Plants, Drniš
- FF7 Cross-border air pollution in Slavonki Brod
- FF8 Pollution from oil refinery in Sisak
- FF9 Plomin Power Station Unit C
- INF1 The Park is Ours, Banja Luka
- INF2 Transport Corridor Vc - LOT 3
- INF3 Flower market Square Redevelopment Plan, Zagreb
- INF4 Sport and Recreation Center 'Svetice' Zagreb
- INF5 Park church Savica
- INF6 Linden trees in Nikšić
- INF7 Tunnel through the Gorica Hill, Podgorica
- INF8 Highway kills old oak tree, Savinac

- INF9 Belgrade Waterfront project
- MIN5 Quarry Nalježići
- MIN6 Nickel ore exploration in Mokra Gora region
- MIN7 Nickel ore exploration mining, Trstenik
- TU1 Golf Park Dubrovnik
- TU2 National Park Sjeverni Velebit
- TU3 Touristic development of Muzil peninsula
- TU4 Cutting down of the Zlatibor forest
- TU5 Tourism development in the Nature Park Stara planina
- BIO1 Olive plantation on Krk Island
- BIO2 GMOs law in agriculture and husbandry Serbia
- BIO3 Farmers protest against the changes in the Law on Agricultural Land
- BIO4 GMOs ban Croatia

Fig. 4 Map of ecological distribution conflicts in the five ex-Yugoslav countries. The point labels include the conflict's primary category (colour-coded, see Fig. 3) and number, while their full names are listed in the legend. *WM* water management, *IND* industry,

MIN mining, *FF* fossil fuels, *WST* waste management, *NUC* nuclear, *INF* infrastructure, *TU* tourism, *BIO* biomass production Source: EAtlas

Table 1 Secondary conflict category grouped in relation to the six economic activities, and the number of cases through three phases in ex-Yugoslav history Source: own elaboration

Economic activity	Phase 1: socialism	Phase 2: transition	Phase 3: EU-accession	Sum	Economic activity	Phase 1: socialism	Phase 2: transition	Phase 3: EU-accession	Sum
Energy production (20)					Industries (16)				
Hydro PP	3		10	13	Metal refineries		1	6	7
Thermal PP	1		4	5	Food and materials	1	1	3	5
Solar PP			1	1	Chemical	1		1	2
Nuclear waste		1		1	Oil and gas refineries			2	2
Infrastructure development (15)					Management of municipal waste (12)				
Urban			7	7	Solid waste		1	6	7
Tourism			5	5	Waste water	1	1	2	4
Transport		1	2	3	Old ammunition			1	1
Mining and extractions (7)					Agriculture (4)				
Mineral ores	1		2	3	GMO			2	2
Sand, gravel, stone		2	1	3	Plantations			1	1
Coal		1		1	Land acquisition			1	1
Total						8	9	57	74

PP power plant, GMOs genetically modified organisms

Characteristics of conflicts in each political phase

Socialism: unsustainable energy for polluting industries; the early environmental movements

Two groups of conflicts were identified in Socialism. The first group consisted of characteristic conflicts related to ongoing air and/or water pollution from state-owned industries and mines (e.g., IND1,2; MIN1), inadequate sewage systems and intensive agriculture (WM4), which converted the hosting urban environments into ‘black spots’. All of these conflicts started as mobilisations seeking reparations for the negative impacts experienced by the directly affected local communities, and most of these cases reached medium intensity. The protestors, who were also members of the workers’ families, most frequently demanded economic compensation in the form of direct payments for loss of harvests and loss of employment (e.g., MIN1), and never sought the closure of factories and mines. Industrial workers supported their employers against the environmental protestors for the sake of job security (e.g., IND1). No workers’ mobilisations for better work conditions in terms of health and safety, such as those documented by Lukey (2002) in South Africa and

Barca (2012) in Italy, Brazil and the United States, have been identified in this phase in ex-Yugoslavia.

The second group of conflicts in the Socialism phase included local resistances against state-led projects to dam watercourses for energy production (WM1–3,5) predominantly in rural areas. Most of these conflicts began as reactions to implementation, or as forms of preventive resistance, and reached medium intensity. The protestors generally demanded the cancellation of dam projects or changes to their design. A group of local scientists created the main arguments against the Rovni Dam (WM3) that was planned to be constructed on a land area with potential seismic activity and important local underground water sources (EJAtlas 2016a). The construction of the Djerdap hydropower plant (HPP) (WM5) provoked only silent conflict, i.e., no public expression of opinions or visible organising by local people. A more practical reaction came from archaeologists, who transferred important Neolithic artefacts from the areas in the Djerdap gorge that were to be flooded, together with almost all arable land, to higher grounds (EJAtlas 2016b). However, the best-known example was when a group of national and international geographers, who praised the exquisite wilderness of the Tara River Canyon in Montenegro (WM1), made the Yugoslav

government cancel the damming of this river (EJAtlas 2016c).

In addition, following Chernobyl, the anti-nuclear movement emerged in Yugoslavia, firstly among students in Slovenia (EJAtlas 2014a). The ex-Yugoslav anti-nuclear mobilisation did not result in a regional environmental movement. Slovenia's anti-nuclear group became the Green Party in 1990, which the environmental groups in other republics saw as promoting nationalism (Jancar-Webster 1998). As in many countries in Western and Eastern Europe (e.g., van der Heijden 2006; Hicks 2006; Barca and Delicado 2016), the anti-nuclear and anti-dam movements in ex-Yugoslavia represented the beginnings of environmentalism. However, these movements did not play a prominent role in the collapse of communism in ex-Yugoslavia as they did in many other post-socialist countries, such as Hungary, Poland, Bulgaria, Ukraine, Czechoslovakia, Russia and the Baltic states (Dawson 1996; Jancar-Webster 1998; Snajdr 1998; Crotty 2006; Fagan 2006; Harper 2006; Ritter 2012). It was rather the weakening of the communist regime in the 1980s that made possible workers' movements for rights and power and wealth redistribution, which in turn sensitised the general public in ex-Yugoslavia to controversial political questions, including environmental issues.

Transition: The extraction of natural resources; the re-emergence of environmental movements

No environmental mobilisations were identified as having emerged during the war (1991–1995). This is not surprising, given that this period saw nationalistic ideas as well as anti-war activism prevail over the environmental concerns of civil society (Komnenović 2014). Although civil society kept much of the same focus in the post-war years (1996–2003), some environmental mobilisation did occur nonetheless. The economic activities that provoked the most mobilisations in the post-war period were those involving the extraction of gravel, sand (MIN3,4) and coal (FF2). These conflicts were the result of growing foreign and domestic demand for raw materials and energy (Stritih et al. 2007). Only two industry-related conflicts were reported in the Transition period (MIN2, IND3) which may be attributed to the fact that the region was undergoing deindustrialisation, i.e., a shift from material production to services (Cvijanović and Redžepagić 2011; Stevanović et al. 2013). Waste and water management conflicts, in particular over landfill siting (WST1) and pollution from wastewater (WM6), were reported for the first time in this phase. In addition, although the anti-nuclear movement in the late 1980s managed to ban the production of nuclear energy across ex-Yugoslavia, it did not succeed in closing the Krško Nuclear power plant, jointly owned by Croatia

and Slovenia. A proposal to build a nuclear waste repository in Trgovska Gora in Croatia (NUC1) provoked resistance from the local community (EJAtlas 2016d).

As had been the case in Socialism phase, most of the conflicts in this period reached medium intensity, and an equal number of these cases consisted of mobilisations against the perceived negative impacts of ongoing projects, preventive resistances, and reactions to the projects implementation. However, the conflictual projects in Transition phase predominantly affected the urban population. Almost all of these projects were led by the state, and more than half of them received some degree of foreign investment.

Unlike in the previous phase, scientists played only a supporting role during the period of Transition. Local communities and grassroots organisations led most of the reported resistances. Local communities demanded to be relocated from the Kolubara mining basin as a whole (FF2) (EJAtlas 2016e), called for alternative sites to be found for the regional landfill and nuclear waste depository (WST1, NUC1), and required the restoration and revitalisation of polluted ecosystems (WM6, MIN4). Here, local communities were united with industrial workers in demanding financial compensation for the negative health effects caused by asbestos (MIN3), and even in arguing for the closure of the factory (IND3). Compared to other countries, such as Portugal (Börzel and Fagan 2015), the demise of authoritarian regime in ex-Yugoslavia did not result in a significant increase in the number of environmental mobilisations. In addition, none of these grassroots mobilisations in ex-Yugoslavia in this period became a movement, such as was the case with the 'Save Rosia Montana' campaign in post-authoritarian Romania (Velicu 2015). These facts may be attributed to the legacy of war and new post-socialist authoritarian regime in the region.

Although few in number, large national environmental NGOs active in the period of Transition introduced some novel democratic forms of mobilisation, such as the use of community participative research and referenda. In addition, these NGOs started organising in local networks and evaluating the projects' environmental impact assessment (EIA) processes and studies formally demanded by the EU (see Hicks 2006; Fagan and Sircar 2010). Further, NGOs elaborated alternative reports and proposals and ran nationwide media campaigns. For example, Green Action (Friends of the Earth Croatia) demanded that their government proclaim the Adriatic Sea a "particularly sensitive sea area" and invest in renewables (FF1) (EJAtlas 2014b). Conversely, activities on the part of international NGOs were reported only in the case of gravel extraction from the River Drava with a transboundary impact (MIN3). A lack of regional cooperation among mobilised environmental NGOs during Transition may be attributed to the

weakening effect that the war had on ex-Yugoslav civil society (Sterland and Rizova 2010; Stubbs 2012; Elbasani 2013).

EU-accession: old industries, unsustainable energy production and urban development; new environmental movements

Unlike the previous phases, during the EU-accession period the majority of reported conflictual projects have been of ‘planned’ or ‘proposed’ status. If implemented, these projects will mostly affect the rural population. Almost all conflictual projects in the EU-accession phase have received foreign investments, predominantly in the form of loans from the European Bank for Reconstruction and Development, the European Investment Bank and the World Bank, while China leads among the foreign country investors (6 out of 57 projects).

Conflicts related to hydropower plants have been the most numerous in this phase (WM7–12, 15–17, 19) (see Table 1), due to an increase in foreign investments for the production of hydro-energy to decarbonise the region’s economy and comply with EU requirements (Bankwatch 2013). The ex-Yugoslav governments view hydropower as a way to overcome dependency on external energy caused by low efficiency in both production (mainly lignite) and consumption (losses in transmission lines) (United Nations Environment Programme (UNEP) 2007), and to boost economic growth through exporting electricity to the EU. The identified cases of EU-financed⁶ expansion of coal thermal PP capacities (FF3-5, 9) call into question the seriousness on the commitment of the EU and the ex-Yugoslav governments to decarbonise their economies.

Urban infrastructure development projects (INF1, 3–7, 9) have been the second most numerous causes of conflicts in this period. These projects are examples of capital accumulation through urban dispossession (Gillespie 2015), while some (e.g., INF9) are also examples of gentrification (Mitchell 2003). Resistances against tourism projects (TU1–3) are characteristic of Croatia due to the government’s plans to boost the national economy through luxury tourism (Government of Republic of Croatia (GRC) 2013).

Numerous instances of urban resistance to industrial pollution and inadequate industrial waste disposal represent a legacy of socialist industries that were either abandoned or lost step with environmental standards (European Environment Agency (EEA) 2010). Further, many municipal waste management conflicts in EU-accession phase have arisen as a result of both an increase in consumption

per capita and inadequate waste management (Alfthan et al. 2015).

Cases related to agriculture, such as farmers’ protests in Serbia against unfavourable changes to the law on agricultural land (BIO3) (EJAtlas 2016f), although less numerous than other types of conflict in this period, could be found across the entire region. Interestingly, after an initial protest against genetically modified organisms (GMOs) by civil society groups in Serbia, the issue was further politicised by right-wing parties during their parliamentary election campaign (BIO2) (EJAtlas 2016g). In Croatia, the use of GMOs has been legally restricted due to the efforts of a national NGO (BIO4) (EJAtlas 2016h).

As in the previous phases, most of the conflicts in the EU-accession period have been of medium intensity. Only a few reported cases related to urban development and waste management have taken some form of more radical mobilisation, such as street blockades and clashes with the police (e.g., INF1, 3 and WST4). In the majority of environmental struggles in EU-accession phase, local communities, including farmers, fishermen, urban dwellers, and recreationists, have protested against an immediate impact on their livelihoods. This phase has seen protestors begin demanding the right to participate in decision-making and, more often than in previous phases, requesting environmental restoration and the cancellation of proposed project activities, including the complete closure of certain industries. However, new employment has been demanded in several conflicts (IND4, 7; FF3), while modernising industrial processes was proposed in only one case (FF8). In some EU-accession cases, workers have expressed dissatisfaction with dismissals, low salaries, and poor working conditions introduced by new private owners (IND8, 12).

A broader politicisation of environmental issues has arisen as a result of the support received by grassroots initiatives from large national NGOs that have also provided alternative solutions to conflictual projects. For example, the NGO ‘Center for Environment’ runs a nationwide campaign in favour of renewable energy (FF4, 5) (EJAtlas 2015a, 2015b) as well as successful anti-HPP campaigns in BiH (as will be discussed below) (WM8-10) (EJAtlas 2015c, 2015d, 2015e). Seemingly localised urban initiatives, such as ‘The park is ours’ in Banja Luka (INF1) (EJAtlas 2014c) and ‘Ne da(vi)mo Beograd’ (INF9) (EJAtlas 2016i), actually embrace broader questions about centralised power, commodification, crony capitalism, land ownership, water quality and other socio-environmental issues. In addition, urban movements have achieved the highest degree of regional cooperation. Similarly, many important issues are fought over in city-based demonstrations in other European semi-periphery countries, such as forest management in Bulgaria (Kenarov 2012) and mining in Romania (Velicu and Kaika 2015). In general, the

⁶ For example, the European Commission’s Projects of Energy Community Interest (PECI) (Bankwatch 2013).

Table 2 Main characteristics of successful cases. Source: EJatlas 2014b, 2014d, 2014e; EJatlas 2015d, EJatlas 2015c; EJatlas 2016h, 2016j, 2016k, 2016l, 2016m, 2016n, 2016o, 2016p

Conflict type	Offenders	Main protestors	Outcome	Duration (years)
Druzhiba Adria, Croatia (FF1)				
Infrastructure— Oil pipelines	Russian and Croatian governments	Local people, local and national NGOs	Stopped by Croatian government	3
HPP Lim, Serbia (WM16)				
Energy—HPP	Canadian company and Serbian government	Local people, national and regional NGOs	Energy permit cancelled by a court decision	5
HPP Ibar, Serbia (WM18)				
Energy—HPP	Serbian electricity company	Local NGOs, fishermen, recreationists, local authorities and professionals	No new information on the project development	4
HPP Vrbas, BiH (WM8)				
Energy—HPP	Government of Republic of Srpska and HES Vrbas	National NGOs, recreationists and local government	Company withdrawal	11
HPP Sutjeska, BiH (WM7)				
Energy—HPP	Government of Republic of Srpska	Local NGOs and international partners	Ministry of Environment refuse to issue new permits. The investor is stepping back	2
HPP Lukovo Pole, Macedonia (WM11)				
Energy—HPP	Macedonia's power plants Company	National NGOs and local people, Albanian NGOs	WB withdrew the funds	4
Linden trees, Montenegro (INF6)				
Infrastructure— Urban	City of Niksic	Local people, NGOs, public figures	Inspectorate of Spatial Planning stopped the project	< 1
Gorica Hill, Montenegro (INF7)				
Infrastructure— Urban	City of Podgorica	Local people	New authorities quit the idea	3
Nickel Mokra gora, Serbia (MIN6)				
Mining and extractions— Nickel	“Dinara Nikl DOO” company and Serbian Government	Local people, municipal government and the PA director	The Government cancelled the company's exploratory permit	1
Makstill AD, Macedonia (IND5)				
Industries— Smelter and steel production	Private company	Local people, NGOs, and representatives of green political party	The company obtained the “A” Integrated Environmental Permit	7
Topilnica, Macedonia (IND6)				
Industries— Smelter and steel production	Privatised state owned company	National NGOs and city authorities	Deletion of the factory from the urban plan, dumpsite cleaning	8
Incinerator Resnik, Croatia (WST3)				
Municipal waste management— Incinerator	Zagreb City Council	National NGO and local people	Project cancelled by the state and city authorities New Minister of Environmental and Nature Protection	11
GMOs ban, Croatia (BIO4)				
Agriculture— GMO	Croatian government	National NGO	New stricter law on GMOs	2

NGOs non-governmental organisations, HPP hydropower plant, GMOs genetically modified organisms

conditions for environmental mobilisations were more favourable than in previous phases, in part due to EU's demand for civil society involvement in environmental

policy-making at national level. However, given that these urban movements criticise governments, their activities are considered undesirable behaviour and their leaders receive

threats. Again, international NGOs are identified as having mobilised only against projects threatening transboundary rivers (WM6, 7, 12, 15, 16).

Level of environmental justice and commonalities among successful cases

Only 13 cases, representing 18% of the total number of conflicts described here, resulted in successes for environmental justice. Anti-HPP mobilisations were the most numerous (5), followed by infrastructure (3), industry (2), mining (1), waste management (1), and agriculture-related cases (1) (Table 2).

Although, these conflicts have differed widely in their duration, in the types of populations affected, and in their significance to regional economies, some similarities were observed. All successful cases, except one (FF1), started in EU-accession phase. The majority of them started as preventive resistance and reached medium intensity. Most of these mobilisations have been led by local communities with the support of national NGOs, while only one included international EJOs. However, active support from local scientists was reported in more than half of these successful mobilisations, while support from local authorities was reported in one-third of the successes.

In fact, some cases ended as successes due to the cancellations of projects or the rejection of EIA studies by local authorities. In others, the company or investor withdrew from the project under direct pressure from grassroots organisations and national NGOs, or due to the cancellation of the construction/exploration permits in court proceedings initiated by the protestors. Two cases ended with the application of existing laws and the implementation of technical solutions for reducing pollution, and one with the passing of a new regulation. In some cases, certain external factors were important in achieving and maintaining success. For example, Russia's interest in transporting oil to the Adriatic coast (FF1) (EJAtlas 2014b) was stalled by EU sanctions (European Union (EU) 2017), while Croatia gave up building an incinerator near the capital (WST3) (EJAtlas 2016p) to comply with the EU Waste Framework Directive (European Commission (EC) 2008).

The great majority of mobilisations (41) were impotent against the combined power of profit-seeking governments and corporations, while 20 conflicts have undecided status. Many of the cases that have failed were labelled by governments as projects of national interest, in particular those related to energy production (WM1, 5, 7, 10, 11), coal extraction and processing (e.g., FF2), oil and gas refining (e.g., IND1), and the building of transport corridors (INF2, 8). High levels of corruption have contributed to the failure of urban and touristic infrastructure cases, despite the strength of local movements. The main obstacles to the

success of mobilisations against industry-, mining-, and municipal waste water-related projects have been an unclear environmental jurisdiction and liability, the high costs of the area restoration and compensations for the damage, poor law enforcement, and low penalties for polluters.

Conclusions

This article has analysed the 74 most illustrative cases of ecological distribution conflicts in ex-Yugoslavia identified between 1945 and 2016, a period divided in three phases: Socialism (1945–1990), Transition (1991–2003), and EU-accession (2004–present).

The great majority of conflicts were reported in the last phase. Such a disproportion in the number of conflicts reported in the three phases could in part be explained by the fact that the Internet was used as the main source of information and that the most recent conflicts were more widely reported online. However, given that the sample is illustrative rather than exhaustive, the increase in the variety of conflict categories in the EU-accession phase, which is characterised by: (i) the growth in material and energy flows and (ii) change in the composition of material flows relative to pre-war Socialism phase coupled with altered socio-political context (Sect. 2), confirms the hypothesis that the growth in social metabolism caused by the change from socialism to capitalism has resulted in increased occurrence of EDCs in ex-Yugoslavia. These results also suggest that the composition, demands and success of EJ movements have depended both on the type of conflict and on the political and institutional conditions of each regime. In addition, Yugoslav-style socialism and nationalism, which resulted in civil war, have contributed to the specificity of the EJ movements in ex-Yugoslavia compared to movements in other European post-socialist countries (see Carmin and Fagan 2010).

During Socialism, ecological distribution conflicts in the country were related to commodity frontiers for energy to support heavy state-owned industries typical of communist economic systems (see Hicks 2001). In that period, social stability was maintained by means of economic benefits (e.g., jobs, cheap electricity, and writing off taxes) to compensate for negative environmental impacts. In line with the evolution of global environmentalism, anti-nuclear and anti-dam environmental movements were developed by ex-Yugoslavia intellectuals. However, the impact of environmental movements within a society dominated by an authoritarian regime was limited and decreased with the approach of the civil war.

The natural resource extractions in the post-war Transition phase were the result of growing domestic and

foreign needs for construction materials and energy. In that period, despite the emergence of new authoritarian regimes in the region, economic insecurity motivated some local communities in ex-Yugoslavia to request solutions to immediate environmental problems, though not addressing their underlying causes. However, national NGOs were the most active EJOs and they launched discussions on trade-offs among social, environmental and economic interests. These actors engaged more directly in political work by safeguarding the implementation of policies and measures that encouraged sustainability, such as new and more stringent Environmental Impact Assessment.

The conflicts during the EU-accession phase have been found to be the results of both a legacy of communist industry and of ‘modernisation’ projects characteristic of all semi-peripheral regions aiming to “catch up with the West” (Taylor and Flint 2000; Horvat and Štiks 2012). These projects also include those characterised as ‘green’, amongst which hydropower plants are the most numerous and are identified in each country. Here, the existing and potential unsustainabilities were immediately politicised by the new anti-dam and urban EJ movement, which also suggested more sustainable alternatives to conflictual projects, many of which were promoted by EU.

Although changes in political regimes have managed to solve some sustainability problems, these changes have also created new problems. Fortunately, the unsustainabilities resulting from transition have been immediately politicised by EJ movements which, unlike policymakers, can be considered as ‘safeguards of society’. The timely responses of EJ movements, together with the support they have received from local authorities, have in fact been the main reason why 12 unsustainabilities in EU-accession and one in Transition have been successfully prevented or addressed. Unfortunately, the results also suggest that the success of conflicts still strongly depends on the importance of project activities in relation to governments’ broader economic aims, as well as levels of corruption and the political accountability of governments. Nevertheless, it is not only small local conflicts that have ended in success for environmental justice: some resistance campaigns against major energy and mining-related projects of great importance to the regional economy have also managed to prevent significant unsustainabilities. Still, in the latter cases, certain external reasons contributed to achieving and/or sustaining these victories. It is worrying, though not surprising, that the increasing number of urban movements which explicitly combines a variety of social, economic and environmental sustainability issues, demands deeper socio-ecological changes, such as decentralisation of power and the eradication of crony capitalism, and suggests paths to development that differ from EU-promoted strategies, has remained largely unsuccessful.

This analysis suggests that the commodity frontiers in ex-Yugoslavia are located within the areas of outstanding natural beauty and/or areas inhabited by lower income social groups. These groups include both actors that are worried about economic security (e.g., industrial workers and farmers) and those concerned with non-market access to environmental resources and services (e.g., urban dwellers and recreationists), whose struggles for EJ could be categorised as the environmentalism of the poor (Martinez-Alier 2002). Stronger alliances between urban, industrial workers’ and farmers’ movements, such as through the shared anti-privatisation argument, and a higher level of collective will for EJ, are necessary to ensure greater success in their struggles and ultimately to the adoption of lasting sustainability solutions in the region.

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