Regional Studies

ISSN: 0034-3404 (Print) 1360-0591 (Online) Journal homepage: www.tandfonline.com/journals/cres20

Place-based leadership and environmental conflicts in the European Union

Ignazio Cabras, Marcel Llavero-Pasquina, Katia Picaud-Bello & Gabriel Weber

To cite this article: Ignazio Cabras, Marcel Llavero-Pasquina, Katia Picaud-Bello & Gabriel Weber (2025) Place-based leadership and environmental conflicts in the European Union, Regional Studies, 59:1, 2486644, DOI: 10.1080/00343404.2025.2486644

To link to this article: https://doi.org/10.1080/00343404.2025.2486644

REGIONAL STUDIES
2025, VOL. 59, NO. 1, 2486644
https://doi.org/10.1080/00343404.2025.2486644

Place-based leadership and environmental conflicts in the European Union

Ignazio Cabras[a,b], Marcel Llavero-Pasquina[c], Katia Picaud-Bello[b] and Gabriel Weber[b]

ABSTRACT

This paper investigates the relationship between place-based leadership and environmental conflicts. Focusing on France, we examine the development and distribution of environmental conflicts, and compare them with what happens in the European Union. We then select three case studies to analyse the behaviour of different actors or groups involved, examining actions and initiatives that can ignite or help defuse environmental conflicts across local communities. Findings unveil the key role of local scientists in environmental conflicts, and the emergence of non-assigned leaders who utilise interpretive power to influence decision-making processes related to large infrastructural projects approved at local and national levels.

KEYWORDS

place-based leadership; environmental conflicts; local administrations; France

JEL H80, Q57, Q58, R50, R58

HISTORY Received 1 March 2024; in revised form 12 March 2025

1. INTRODUCTION

In the European Union (EU), the approval, commissioning and delivery of large infrastructure projects involves several stakeholders from public and private domains, and requires the input of multiple administrative levels. The outcomes of these projects and their social and economic impacts are often far-reaching, encompassing multiple geographical areas and local administrations, within and across countries. While there is a substantial literature addressing the leadership of regions cities and communities (e.g., Beer & Clower, 2014; Beer et al., 2019; Budd & Sancino, 2016; Bowden & Liddle, 2018; Gibney et al., 2009; Sotarauta, 2016), the terms 'region', 'city', 'local' and 'community' are frequently used interchangeably across studies (Ayres, 2014), making evaluating the significance of scale related to large infrastructural projects a challenging task.

Since large projects often cross political–administrative boundaries separating 'cities', 'towns' and 'local authorities', their scale raises questions about the 'community' or 'communities' they affect, and whether these terms effectively describe neighbourhoods or localities, or something else (Ayres, 2014; Beer & Clower, 2014). This point is salient in view of ascertaining the type of leadership and leaders that may be involved in these large projects, whose roles and power would vary significantly depending on a given project's scale, objectives, financial justification and scope in terms of generating development at a local level and beyond. In addition, due to the growing concerns related to achieving sustainable development and securing a future for the next generations, the environmental impact of these projects are increasingly under scrutiny by multiple observers.

Environmental conflicts are social conflicts produced by asymmetrical access and distribution of environmental benefits and costs. They are mostly created by power imbalances within society, where individuals with power and control can transfer environmental externalities associated with production and consumption patterns to others (Martínez-Alier et al., 2011). As such, environmental conflicts are often associated with companies exploiting sites and resources in an attempt to increase profits and revenues, for example, by boosting

CONTACT Ignazio Cabras ignazio.cabras@northumbria.ac.uk
[a] Newcastle Business School, Northumbria University, Newcastle upon Tyne, UK
[b] EU*Asia Institute, ESSCA Ecole de Management, Angers, France
[c] Institute of Environmental Science and Technology, Universitat Autònoma de Barcelona, Bellaterra, Spain

Supplemental data for this article can be accessed online at https://doi.org/10.1080/00343404.2025.2486644
This article was originally published with errors, which have now been corrected in the online version. Please see Correction (http://dx.doi.org/10.1080/00343404.2025.2506955)

infrastructural endowments, developing tourism potential or making brownfield investments. These initiatives are characterised by high environmental costs that tend to create and expand social inequalities, increase the level of contested claims over resources, and magnify the uneven distribution of wealth among communities and across countries. However, there is still a paucity of studies analysing how environmental conflicts develop; what happens when projects find opposition across different segments of communities and societies; how local leaders react to this opposition; and the outcomes associated with these relationships and processes.

The objective of this paper is to address this paucity by exploring environmental conflicts in the EU, focusing on France. In doing so, we analyse data provided by the EJAtlas, a publicly available database documenting the presence, development and evolution of environmental conflicts worldwide. We address the following research questions:

- How do local leaders respond to environmental conflicts and deal with them?
- What are the implications of these conflicts in terms of place-based leadership?

The rest of the paper is structured as follows. Section 2 provides the theoretical background of the study, examining the literature related to place-based leadership and defining environmental conflicts. Section 3 describes the data used and methodology applied. Section 4 shows the results and findings gathered from the data analysis, presenting three illustrative case studies. Section 5 discusses their implications for local leaders, economies and communities. Section 6 concludes.

2. THEORETICAL BACKGROUND

2.1. Defining place-based leadership

Place leadership, also known as place-based leadership (PBL), is a concept that indicates the characteristics, objectives and practice(s) related to leadership at the subnational scale. Within the regional studies field, PBL has become an increasingly important model for examining and explaining successful policy development and implementation at the local, regional and national levels (Beer & Clower, 2014; Sotarauta et al., 2017; Vallance et al., 2019). Significant attention has been given to the study of the role of leaders and leadership in local and regional development, with a particular focus on local political or managerial leaders. Their roles and activities often result from relationships involving actors operating not only within and across local or regional authorities, but also between public and private spheres, encompassing other entities such as community, voluntary or civic organisations (Sotarauta et al., 2017).

Most scholars indicate leadership as an important factor in explaining why some cities and regions enjoy greater economic and social prosperity than others (Collinge & Gibney, 2010; Sotarauta et al., 2017). Despite this importance, the role of leaders and human agency in relation to subnational transformation is largely neglected, as researchers in regional development devote more effort to examining structural or institutional conditions for economic and social growth (Sotarauta & Beer, 2017). Much of this neglect is also due to the lack of empirical evidence of the processes underlying PBL (Beer & Clower, 2014). For instance, it is still unclear how the intertwined relationships defining PBL can be effectively reproduced in widely varying institutional systems and across different areas and regions, especially those where inclusive practices of collaborative governance are not already established. Research has only recently started to addresses the complexity of replicating multiple forms of distributed PBL in the context of existing governance structures (Beer et al., 2019).

At a local, subnational level, leadership tends to rely on the mobilisation of multiple stakeholders based within the administrative structures, such as local authorities, or from the civic domain comprising businesses, community groups and universities, to develop the city or region (Sotarauta & Beer, 2017). Leadership is then distributed across multiple contributors and translates from collaborative efforts rather than individual agency (Gronn, 2002). Within PBL, Sotarauta (2016) distinguishes between 'assigned leaders' and 'non-assigned leaders', the former having a recognised mandate for promoting regional development (e.g., elected or appointed policymakers), and the latter having some means of influence in local networks despite lacking any formal role (see also Hambleton & Howard, 2013). As such, PBL can translate into different forms of power, for example, institutional power derived from official roles and positions; resource power, associated with control over funds or other rewards; interpretive power, based on the ability to articulate visions for change shared by others; or network power based on social capital (Sotarauta, 2016). Likewise, the presence of individuals or groups operating across formal and informal power layers enables the brokering of local networks and partnerships to achieve shared goals, although these intermediary and collaborative means remain frequently underexplored (Beer et al., 2019).

Sotarauta and Pulkkinen (2011) describe PBL as closely related to 'institutional entrepreneurs' who work to alter the organisational and territorial governance structures in which they are embedded. These practices and their contemporary relevance can also be situated within more networked forms of governance which try to integrate community stakeholders as well as corporate interests. Collaborative forms of governance encourage a more holistic approach to policy and planning processes, focusing on improving the interconnected economic, social, and environmental qualities of a given place (Healey, 1998). Civic leadership is fundamental for developing this inclusive approach, but sometimes it occurs against the backdrop of broader circumstances such as austerity measures, posing challenges for local governments who seek to innovate and improve the delivery of public services while experiencing severe reductions in funding at their disposal (Bowden & Liddle, 2018; Hambleton & Howard, 2013). Similarly, the ability of multiple actors

to contribute to effective PBL relies on organisations having sufficient resources to reach their own strategic and operational goals, so that these can be dedicated to civic interests shared with other local stakeholders (Beer & Clower, 2014).

Gibney et al. (2009, p. 10) state that: a 'strategic leadership of place' is needed to capture the benefits of such articulated relationships, facilitating interdisciplinarity across institutional boundaries, technology themes, subterritories and professional cultures to promote the development of innovation across the public and private sector domain. This strategic approach is also required to ensure and enhance the involvement and participation of local communities in shaping responses to economic, environmental, and other societal challenges facing cities and regions. Thus, PBL works as a platform for diverse local agencies to congregate and engage in problem-solving and collective-learning processes (Nicholds et al., 2017). However, to function effectively, these collaborative partnerships depend on leadership being recognised, legitimated and supported amongst local communities (Hemphill et al., 2006).

The capacity of leaders to emerge from within the community is one of the key dimensions of PBL (Collinge et al., 2010). Only a few individuals gain enough stature and significance to actively reshape local communities. The way community members rise to positions of influence, and the factors assisting their emergence, can vary significantly across countries due to differences in cultural and societal structures, although some specific aspects of charismatic leadership appear to be universally endorsed across cultures (Hartog et al., 1999). Understanding how local leaders act and share responsibility across administrative, political and other structures (Collinge & Gibney, 2010), as well as understanding the boundaries dividing them, are central aims of PBL (Sotarauta & Beer, 2017). Equally, the processes leaders use to draw in support, mobilise resources and expertise within communities, and access knowledge to generate informed decisions are all crucial to understanding PBL (Sotarauta & Beer, 2017).

In this scenario, interpretive power, thus the ability to understand people's behaviours and experiences in the context of their culture, can play an important role. Place leaders may deploy interpretive power in a range of contexts such as: convening or mediating information to different groups of actors; fostering collaborations or improving the coordination between fragmented groups; and influencing networks and dialogues (Sotarauta, 2016). Sotarauta (2016, p. 54) states that place leaders 'need to be able to speak with many interest groups in their "own language", rather than alienating themselves from the relevant networks by speaking a language the rest of the pack does not understand or by using a rationale that has no meaning to people'. However, PBL might not be uniformly well-developed under all circumstances, since some systems of government, national and regional cultures, and economic and communal structures are likely to show more robust PBL features compared with others. As there is a paucity of research comparing PBL across countries and regions, there is a need to better understand whether economic and social challenges at the regional and sub-urban level receive adequate responses from local leaders (Budd & Sancino, 2016).

2.2. The linkage between environmental conflicts, environmental justice and PBL

In the literature, environmental conflicts are frequently associated with the concept of environmental justice (EJ), linked to a social movement that endeavours to create a fairer and more equitable distribution of environmental benefits and burdens (Martínez-Alier, 2012). Conceptually, EJ draws on intersecting categories such as race, gender and class to explore structural and environmental inequality and the complex interconnections between social justice and environmentalism (Schlosberg & Collins, 2014).

EJ is characterised by interdisciplinarity, comprising environmental law, environmental policy, political ecology, governance for development and sustainability. In the United States, EJ tends to focus on categories such as race, gender or class (Warlenius et al., 2015). However, in Europe, EJ is more directly associated with issues concerning environmental quality, social deprivation and equity, and sustainable development (Scheidel et al., 2020). The link between EJ and environmental conflicts is strong, and these conflicts occur at both the local and global levels (Martínez-Alier et al., 2011). Many local conflicts happen within a short commodity chain, for example, local soil, sand or gravel extraction to build a new road (Martínez-Alier et al., 2011). Parties involved in these conflicts include affected communities, companies, investors and social or environmental movements. In the literature, these are usually referred to as 'environmental defenders', most frequently members of vulnerable groups who employ largely non-violent forms of protest. Their actions and activities aim to protect their homelands from resource extraction and exposure to different types of pollution, for example, water, radioactive, plastic, soil or noise pollution (Scheidel et al., 2020).

Since the early 1970s, there has been increasing resistance by communities all over the world opposing the destructive operations of multinational corporations and demanding EJ (Temper et al., 2020). Frequently, resistance is promoted by environmental justice organisations (EJOs), mostly communities of people and activists reunited in multiple campaigns and initiatives. Environmental conflicts arise over access to natural resources, the burdens of pollution and the human abuse of ecosystems (Akbulut et al., 2019). Material and energy consumption are at historically high levels leading to an increase in environmental conflicts (Bontempi et al., 2021). Activists and social movements often expose companies adopting ambitious corporate social responsibility (CSR) programmes in the attempt to disguise their highly entropic production patterns (Bontempi et al., 2021).

Frequently, environmental conflicts also arise from the complexities related to multilevel governance systems, overlapping spaces within which the proposal, planning, construction and operational delivery of environmentally

sensitive projects are situated and regulated. These aspects are also relevant for PBL in view of achieving successful policy development and implementation across all governance levels. To better contextualise this issue, it is necessary to discern between governing, government and governance. Governing relates to making decisions, resolving conflicts, producing public goods, coordinating private behaviour, regulating markets, organising elections and distributing resources (Leca, 1996). Government refers to structure, actors, processes and outputs. Governance relates to all institutions, networks, directives, regulations, norms, political and social usages, and public and private actors that contribute to the stability of a society (Cole, 2008).

These three domains can vary significantly across countries. France, for instance, is traditionally characterised by a strong central authority that controls public and private actors, based on established territorial hierarchy and constitutional rules delivered by a powerful bureaucracy (Cole, 2008). In contrast, Germany's decentralised federal system gives the *Länder* political and administrative salience, with territorially defined units bearing constitutionally entrenched responsibilities, and local authorities playing a strong political and (multi-)functional role in the intergovernmental system (Wollmann, 2004). Most of the responsibility for policymaking and legislation lies at the federal government level, but the federal government has no formal leverage on policy coordination at the local level (Wollmann & Bouckaert, 2007).

Systems of multi-governance have a strong impact on PBL development and delivery (Bentley et al., 2017). The French territorial architecture is quite unique for several reasons, but it is mainly characterised by a multitude of territorial overlapping jurisdictions operating in a relatively flexible, non-tiered system (Wollmann, 2010). Five levels can be identified within this system: the central power or state, the *régions*, the *départements* with assigned *prefects* (representatives of the French government), the *intercommunalité* (intercommunity structures), and the town or village councils (Orange, 2006). This fragmentation across many levels operates as a form of multi- or polycentred governance, with fewer rings of hierarchy compared with multilevel or multitiered governance (Hooghe & Marks, 2001). In Germany, for comparison, this dispersion is constrained by limiting the levels of authority and institutional development within the federative framework comprising the central government, the *Länder*, and municipal authorities (either counties or larger 'county-free' towns; Wollmann, 2010).

Another aspect of environmental conflicts concerning PBL is the role of the state regarding economic coordination and collaboration. In France, the state controls the mechanisms for economic coordination more than in Germany or the UK, but French governments cannot often achieve state-led coordination in economic policies and initiatives (Cole, 2008). While the case of France demonstrates a very close, sometimes inseparable, relationship between state and industry in all fields, Germany shows a similarly good state–industry relationship, except for environmental issues, for which it suffers from an inflexible and costly regulatory framework (Wallace, 2017).

In terms of environmental management, most regulations are designed and delivered at the EU level; this has an impact on how European governance affects members' multilevel dynamics. Cole (2008) claims that French governments have succeeded in limiting multilevel governance to the bare minimum: therefore, European governance embeds much weaker multilevel dynamics in France compared with Spain, Germany or Italy. The prefects appointed by the French President as the state's representative in administrative departments or regions perform a coordinating role in the management of EU Structural Funds. In Germany, the federal government does not have field offices at the regional or local level, and so the application of federal policies as well as EU legislation falls to the *Länder*, and within the *Länder* to local authorities, with no interference from the federal level (Wollmann & Bouckaert, 2007).

France's multilevel governance system provides an appropriate and relevant platform to explore the linkages between environmental conflicts, EJ and PBL, making the case of France an illuminating context for examining environmentally sensitive projects and related conflicts at a regional level.

3. METHODOLOGY AND DATA

The data for this study were extracted from the Global Atlas of Environmental Justice (EJAtlas), the largest database of environmental conflicts worldwide (Temper et al., 2020). Each observation in the database combines free-text descriptions fully referenced to sources comprising news outlets, social media, audiovisual contents, academic publications, corporate reports, and legislative and court rulings available in the public domain. The description of conflicts is voluntarily documented by researchers, students, activists or residents. Cases are reported with coded variables associated with different geographies and types of conflicts,[1] allowing for quantitative data analysis targeting a variety of attributes and features of environmental conflicts in different contexts. At the end of 2023, nearly 4000 environmental conflicts were recorded on the database. Since its launch in 2014, the EJAtlas has opened new methodological opportunities in an innovative field of research defined as 'statistical political ecology' (Bontempi et al., 2023; Scheidel et al., 2020).

In our study, we use the EJAtlas data, first, to understand the specificities of environmental conflicts in France, and second, to investigate the roles of local actors and local political dynamics in determining the course and outcome of environmental conflicts. At the time of our investigation (December 2023), 64 and 396 recorded cases of environmental conflicts were documented in France and the EU, respectively. We focused our quantitative analysis on three mutually exclusive conflicts, distinguished by economic sector, project status and geographical scale;

and one non-mutually exclusive attribute which classifies actors mobilised in a given conflict. For each classification, we examined the percentage of environmental conflicts related to different categories, applying a Pearson chi-squared test (95% confidence interval) to verify whether different categories were significantly over- or underrepresented in French environmental conflicts compared with environmental conflicts in the rest of the EU.[2]

Figure 1 shows the environmental conflicts analysed in this study by economic sector and project status (see also Table A1 in Appendix A in the supplemental data online). The map shows environmental conflicts representatively distributed across the country. The Auvergne-Rhône-Alpes region shows a higher number of environmental conflicts (12), followed by Nouvelle Aquitaine and Provence-Alps-Cote d'Azur (11, respectively); while the Ile-de-Paris shows a higher spatial density of conflicts attributed to a higher population density as seen in general in the EJAtlas database.

Among the French environmental conflicts, 17 projects were classified as 'halted', including six as 'cancelled'. The EJAtlas database provides in-depth information about each of these conflicts, the associated relevant events, and actors at national, regional, and local levels that contributed to the discontinuation of the project. This information was further validated by documentation gathered from Reporterre, a French independent, non-profit and free-access media repository that publishes and updates a map of environmental conflicts containing articles and press releases. The Reporterre platform provided access to interviews with different actors involved in environmental conflicts, enhancing the identification of PBL dynamics and increasing the comparison between French media coverage of conflicts with coverage on international media.

4. RESULTS

4.1. Overview of environmental conflicts in France

Environmental conflicts in the nuclear energy sector (14) and construction/infrastructure sector are significantly overrepresented in France compared with the rest of the EU (p = 0.002 and 0.048, respectively). This reflects both the French national energy policy, largely based on nuclear power, as well as the transport policy based on large infrastructures (Hecht, 2009). Projects within these domains are frequently named *grands projets inutiles*[3] by the EJOs campaigning against them (Aguilera, 2021). In contrast, conflicts addressing projects and initiatives associated with fossil fuels, mining, waste and water management are fewer than in the rest of Europe, albeit our analysis found no statistical significance. This most likely reflects the relatively low contribution of extractive activities to France's economy (Figure 2).

Frequently, local actors play a leading role in environmental conflicts involving extractive projects in both France and the EU (Figure 3a). These are mostly residents' and citizens' communities (87%), EJOs (71%), local government and political parties (67%) and local scientists and professionals (57%). Social movements (64%) and farmers (45%) are also prominent in France, the two groups being significantly more represented than in other EU countries (p = 0.039 and 0.016, respectively), probably due to the centralised decision-making processes and related structures across companies and local government bodies in the country. While such a high level of centralisation may not integrate well with the interests and grievances of marginalised social groups and peripheral segments of French society, the potential stalemate created by formal organisational and governance structures seems compensated by the emergence of social movements, residents' groups and workers' organisations (such as farming networks) at a local level (Appleton, 2013). Findings confirm the predominant relevance of local movements in environmental conflicts in France and worldwide, corroborating evidence provided by Scheidel et al. (2020).

In comparison with conflicts documented in the rest of the EU, environmental conflicts in France tend to occur more at the regional level, than at a lower geographical and administrative scale (Figure 3b) (p = 0.001 and 0.028, respectively). Half of the cases identified in France occur at a local scale (51%), with more than four in 10 occurring at the regional level (44%) and just a tiny minority (3%) cases attaining a national scale. In contrast, two in three cases detected across the EU unfold at a local scale. It appears that the projects sparking conflicts in France are larger and have broader geographical implications for local communities across different geographical contexts and settings, with local groups of activists and campaigners showing a higher level of awareness about the effects of projects felt beyond their immediate spatial proximity. Moreover, local and regional networks of activities and campaigners might be readier and more frequently mobilised in resisting projects across the country, with French EJOs having relatively stronger solidarity links between regional groups compared with their EU equivalents.

Using an algorithm-assisted matching process to consolidate subsidiaries, mergers and acquisitions, and duplications into single entries, we extracted from the sample of French cases a subsample comprising the companies most frequently involved in environmental conflicts. Results in Table 1 indicate that most companies are involved in a single environmental conflict, with fewer companies involved in two or more conflicts. However, the exercise identifies EDF, VINCI and SNCF as the companies most frequently involved in environmental conflicts in France.

The data show that 28 projects were reported as halted, thus either operationally paused or cancelled, at the time of data collection (Figure 3c). This figure accounts for about 45% of the projects analysed, and is significantly higher in France compared with the rest of the EU (p = 0.034). Aside from the effective campaigns promoted by local EJOs, projects might be halted or cancelled due to business case losses, which may result in project abandonments, or failure to obtain relevant permits to continue

Conflict	Ongoing	Halted
Biodiversity conservation conflicts	4	
Fossil Fuels and Climate Justice/Energy	4	1
Biomass and Land Conflicts (Forests, Agriculture, Fisheries and Livestock Management)	1	3
Water Management	2	3
Tourism Recreation	3	4
Infrastructure and Built Environment	17	8
Waste Management	1	2
Industrial and Utilities conflicts	4	1
Mineral Ores and Building Materials Extraction	1	1
Nuclear	10	5

Figure 1. Map of environmental conflicts in France by type of project and industry.

operations. In some sectors, halted projects outnumber those still ongoing, as in the case of tourism recreation and water management.

This aspect was further examined by developing a binomial regression model, aimed at verifying the relationship between halted projects in the EU and the involvement of local actors, with mobilised groups used as independent variables. Local scientists and professionals, defined by the EJAtlas as 'individuals or collectives providing professional, scientific, and technical

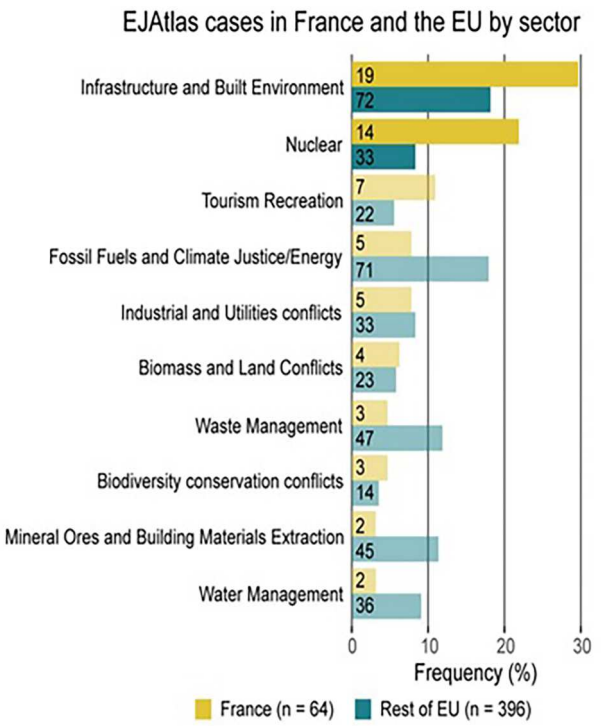

Figure 2. Distribution of EJAtlas conflicts by sector of activity comparing between France and the rest of the European Union.
Note: Counts are in bars.

knowledge to support claims for EJ', appear to be the most relevant group among those investigated in the analysis. Results in Table 2 show a significant, positive relationship between the mobilisation of local scientists and halted projects, with *Z*-odds indicating a more than twice probability for projects to be halted when local scientists are involved in the conflict.

The model found no significant associations with mobilisation of neighbours, local EJOs or local government. Similarly, the inclusion of interaction variables associated with French cases did not generate any significant results.

4.2. Selected case studies

The quantitative analysis presented in the previous section identified an overrepresentation of halted projects in France compared with the rest of the EU. Based on this finding, we focus on cancelled projects, thus projects whose completion has been abandoned or scrapped, to understand how their termination affects local populations and ecosystems in France. In doing so, we select three case studies to illustrate, examine and discuss the role of PBL in French environmental conflicts. The three cases can help with improving our understanding of the leadership mechanisms exerted by different actors (assigned and non-assigned leaders, campaigners and scientists, EJOs) within local environmental conflicts. Two of the selected projects relate to transport infrastructure, while one project relates to nuclear energy, reflecting the predominance of environmental conflicts across these sectors in France compared with the EU. Moreover, the selected case studies see the involvement of EDF and VINCI, the two companies associated with the highest number of environmental conflicts in France.

4.3. Notre Dame des Landes (NDL) airport

The first case refers to the construction of the Aéroport du Grand Ouest in the NDL area. The airport was due to replace Nantes Atlantique Airport, and to serve as an international gateway for France's north-western regions. In 2008, the French government approved a *Declaration d'Utilite Publique* (DUP), declaring the project of public utility based on the outcomes of a public inquiry launched to assess the value and benefits of the planned infrastructures. The DUP provides a mandate to project managers to deliver all the necessary work related to the project, including the power to expropriate land and carry out engineering works. In the case of NDL, the DUP enabled planning for infrastructure projects associated with the new airport, such as the construction of a high-speed train line connecting Nantes with major French cities. However, the DUP can also be used to halt or cancel projects.

An opposition movement to the NDL project was quickly formed on the initiative of farmers and local EJOs, who questioned the need for such large infrastructures to be built. According to the Syndicate Mixte d'Etudes, an accounting consultancy, project costs were distributed among VINCI, the company commissioned to realise the project (€315 million, 56.6% of total investment); and public funds (€241 million, 43.3%) for which the French government and the Loire-Atlantique Regional Assembly contributed €125.5 million and €115.5 million, respectively. Aside from the (alleged) waste of public money, opponents also denounced the negative impact on the local environment and ecosystem, the detrimental implications in terms of climate change, and the negative effects on land usage and regional farming activity in the region. Michael Dubromel, a local EJ campaigner, stated:

> The balance of the region also raises the question of transport: how will we get to NDL airport, located 27 km from Nantes city centre? The tram-train and Brittany-Pays de Loire high-speed line projects, which would also have an impact on the environment and agriculture, are currently hypothetical. When it opens, Notre-Dame-des-Landes will only be served by bus. It will therefore be preferable to travel by private car.
>
> (extracted from Reporterre, 2008)

The Loire-Atlantique Regional Assembly and the City of Nantes, both led by left-wing coalitions, supported the project, deeming it necessary to enhance faster and more efficient transport connections for one of France's fastest-growing regions. In contrast, Solidarité Écologique, a local EJO, proposed an upgrade the Nantes Atlantique Airport instead of building the new airport, arguing that to preserve the region's rich and diverse ecosystems no new site should be developed in the NDL area. Soon

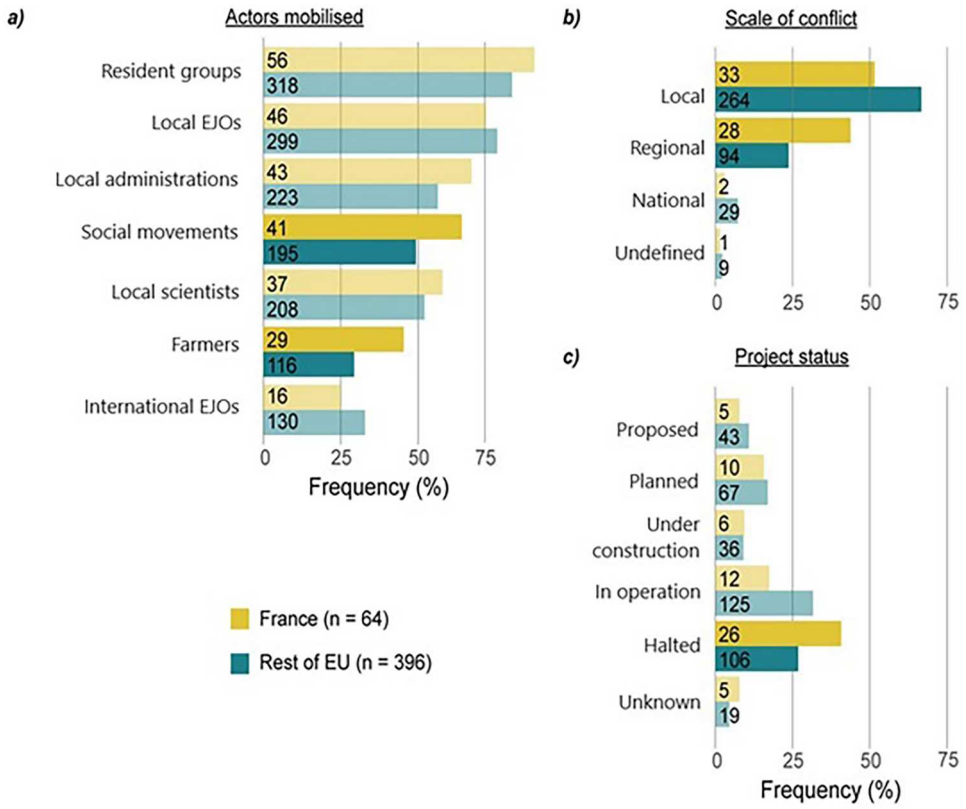

Figure 3. Comparisons between actors mobilised (a), scale of conflict (b) and project status (c) related to environmental conflicts in France and the rest of the European Union.
Note: Counts are in bars.

after, a group of councillors formed the 'Collective of City Councilors doubting the Relevance of the Airport' (CEPDA). The group quickly gathered the support of 1000 elected representatives and 200 members of local administrations (Jaunet, 2019). CEPDA commissioned CE Delft, a Dutch private consultancy company, to prepare a social cost–benefit analysis of the project. Completed in October 2011, the CE Delft report identified limited economic benefits associated with the new NDL airport (Brinke & Faber, 2011).

Table 1. Companies involved in environmental conflicts identified in France.

ID	Company	Category	Multinational	Country of origin	Cases in France	Cases overseas
7180	EDF	Nuclear energy	Yes	France	17	27
7	VINCI Group	Construction, infrastructure and built environment	Yes	France	7	14
3114	SNCF	Construction, infrastructure and built environment	Yes	France	5	6
521	Total SA	Fossil fuels/energy	Yes	France	3	41
346	Areva	Nuclear energy	Yes	France	3	16
5181	Bouygues Travaux Publics	Industrial and utilities conflicts	No	France	3	5
–	Other French companies	[a]	Miscellaneous	France	14	60
–	Other companies	[a]	Miscellaneous	No	12	127
Total					64	286

Note: [a]Mineral ores and building materials extraction; tourism recreation; industrial and utilities conflicts; infrastructure and built environment; biomass and land conflicts (forests, agriculture, fisheries and livestock management); fossil fuels and climate justice/energy; water management; nuclear energy; nuclear.

Table 2. Binomial regression model (dependant variable: project cancelled).

Independent variable	Coefficient	SE	*Z*-value	*p*-value
Neighbours ($n = 374$)	0.18121	0.35695	0.508	0.6117
Local environmental justice organisations ($n = 345$)	0.21585	0.31591	0.683	0.4944
Local government ($n = 266$)	−0.01813	0.26848	−0.068	0.9461
Local scientists/professionals ($n = 243$)	0.61946	0.26945	2.299	0.0215

Note: $N = 463$; the size of the subsample for each independent variable is provided in parentheses.

Despite several demonstrations between December 2011 and February 2012, and the involvement of international EJOs, the NDL project continued. Evictions started in March 2012, but many residents refused to leave and instead became squatters, joining the anti-airport protests by building wood shacks and occupying the land. Several attempts to evict the squatters turned into riots with police using tear gas to break up camps of protesters (Oberti, 2012). Among the many police interventions in this conflict, Operation Cesar marked a turning point in the fight against the airport. On 17 November 2013, a mass demonstration brought approximately 20,000 people to the NDL to reoccupy the site with tents and wooden shacks. The official acronym previously used to identify the area, *Zone à Développer* (ZAD – 'Development Area'), was renamed *Zone à Defendre* ('Area to Defend'). Riot police moved back in, clashing with occupants in the first weekend of the protest. Tear gas and rubber bullets were fired and several police officers and protesters were injured (Schofield, 2012). The Paris terrorist attacks of November 2015 forced the authorities to cancel a second large police operation planned for January 2016. The ZAD was no longer a government priority, with occupants remaining in their camp.

In 2016, Ségolène Royal, Minister of Ecology, asked the Inspectorate General to investigate alternative options for the construction of the NDL airport. The report, submitted to the Ministry of Ecology in April 2016, stated:

> The mission found no trace … of any operational thinking in favour of the airport project's area of influence. This means that there is no regional planning strategy. It is therefore essential to take the time to build a joint regional project, based on the region's assets. And to do this with all the residents and stakeholders.
>
> (extracted from Reporterre, 2016)

After the report, French President François Hollande announced a local referendum in the Loire-Atlantique region on the future of the NDL project. On 26 June 2016, the date of the referendum, occupants and protesters were still living in the ZAD; local EJOs and farming groups were fervently opposed to the project, while most residents and business groups supported it.

In the end, the electorate voted in favour of the construction of the NDL airport with a 55.7% majority. Results revealed a regional divide, with towns and villages within spatial proximity to the planned NDL airport voting overwhelmingly against the project. Opponents denounced irregularities related to the ballot; the two main opponent groups, ZADists and the Association of People Affected by the NDL project (ACIPA) released this statement the day after the referendum:

> We will persist in our efforts to live, farm, and protect this bocage. We will defend it with great determination as it represents a beacon of hope that cannot be extinguished in the face of the destruction of life and the commodification of the world. We urge all supporters and committees in France and beyond to mobilize and increase their vigilance in the coming weeks and months. It should be noted that there will not be an airport at NDL.
>
> (extracted from Reporterre, 2016)

The ZAD occupation continued, making the 1600-hectare enclave an autonomous commune from the French government, with police unable to enter or control it. On 7 May 2017, the newly elected French President Emmanuel Macron made resolving the NDL issue a priority of his mandate. Eight months after his election, Édouard Philippe, French Prime Minister, announced the cancellation of the NDL project.

4.4. A45 motorway in Lyon

The second case study refers to the proposed construction of the A45 motorway, with the objective of doubling the existing A47 motorway to better connect the cities of Lyon and Saint Etienne, in the Auvergne-Rhône-Alpes region. Although the first feasibility studies for this project date back to 1993, it was only in 2016 that Laurent Wauquiez, at the time President of the Auvergne-Rhône-Alpes, proposed the A45 project again by labelling the A47 motorway dangerous. Supported by the French Ministry of Transport, the project received €845 million in funds provided by the French government (50%), the regional assembly (25%) and the metropolitan authority of Saint Etienne (25%). Design and execution of the project was commissioned to VINCI, a multinational company.

The presence of VINCI, and the large budget awarded to the project, attracted criticism from Europe Ecologie les Verts, the French Green Party, and from Sauvegarde des Coteaux du Lyonnais (SCL), a local EJO which deemed the A45 project costly and unnecessary. According to SCL, the project would have needed an investment of at least €1.2 billion, a much higher figure than the allocated funds of €845 million (World Highways, 2016). In addition, the planned opening in 2022 and the 55-year concession to VINCI raised doubts about the project's

potential to fuel regional development and growth. Maurice Fish, President of SCL, stated:

> VINCI has become the preferred specialist of the oligarchs who rule over us, profiting from useless, imposed Major Projects financed by public money. As with the NDL Airport, this is a costly and harmful project, on arable land, when alternatives exist.
>
> (extracted from Reporterre, 2016)

SCL started campaigning against the A45 in 2016, proposing alternatives to the A45 project such as promoting the region's agricultural sector. This counter-response reflected concerns about threats to the livelihoods of many local farmers who sold their produce along the route of the planned new motorway. In support of their argument, members of SCL organised a two-day festival featuring concerts and a farmers' market. The initiative attracted an attendance of about 1500, increased SCL membership by signing up young adults and students, and brought other residents' groups to join the protest. The initiative included the creation of a representative logo, a dedicated website,[4] and campaigns on multiple social media platforms such as Twitter (now X) and Facebook. A protest flag with the representative logo was unveiled at the top of a watchtower six metres above one of the hills where the first phase of construction was planned.

In 2017, a new group called Les Naturalistes joined the protest. Their membership mostly comprised environmental activists and students, many of whom acted as 'biodiversity watchers' on behalf of local research programmes, monitoring local breeds and specimens. About 60 naturalists of all ages and specialties came together annually to create an inventory of the flora and fauna in the region. This exercise produced about 4000 data points comprising information related to between 400 and 500 different fauna and flora species living in the areas affected by the A45 project.

Les Naturalistes drew attention to one specific strip of land threatened by the project, identifying the presence of around 100 protected species. Between June and July 2017, under the coordination of Rhône-Alpes Federation for the Protection of Nature (FRAPNA), they released this statement:

> Beyond the scientific interest of collecting data and learning more about the environmental impact by the freeway, the aim is above all strategic. Other environmental associations in protests have already demonstrated their effectiveness in drawing up a counter-expertise that is valid in court, as in Notre Dame des Landes.
>
> (FRAPNA, Reporterre 2017)

In October 2017, campaign leaders sent a letter to Élisabeth Borne, Minister for Ecological Transition, reaffirming their concerns about the project, its incompatibility with environmental protection laws and the inconsistencies with the commitments made by the French government with international partners about climate change. In support of their claims, they provided the outcomes of independent studies indicating an 85% increase in greenhouse gas emissions by 2035, compared with 2004 levels.

Support for the project at Saint Etienne and Lyon was mixed. While Saint Etienne City Council launched a public poster campaign entitled 'Je la Veux' ('I Want It' – referring to the A45), councillors at Lyon City Council were more reticent, and most councillors at the Auvergne-Rhône-Alpes Regional Assembly openly opposed the project. Although a DUP for the A45 was approved in February 2018, the project was cancelled that July, with the Ministry of Ecology publishing a final report suggesting alternative roads and railways to the A45. The €400 million initially allocated by the French government to the project were reallocated to the restructuring of the A47 motorway and improving the railway between Saint Etienne and Lyon.

Despite this cancellation, however, crucial questions remained about the role of the Auvergne-Rhône-Alpes Regional Assembly and its environmental preservation and green transition objectives. Maxime Combes, a leading campaigner against the A45 project, summarises:

> What kind of regional project do we want? How can we reduce the need for mobility and improve the quality of transport? Do we want local public services and the relocation of activities and the economy, or do we want people to always have to travel between Lyon and Saint-Etienne? Do we want to bring in new farmers and feed ourselves with high-quality, environmentally-friendly produce, or do we want to pave over farmland? And how do we go about reducing polluting gas emissions and protecting biodiversity?
>
> (extracted from Reporterre, 2018)

4.5. Nuclear power plant at Fessenheim

The third case study refers to the project of building four nuclear reactors at Fessenheim, (Grand Est region) in the Rhine Valley, an area at significant risk of flooding and earthquakes. In July 1970, national and local media first broadcasted news of the proposed plant. EDF, the company commissioned to deliver the project, already owned the land required to build two of the four reactors, and needed to acquire the same amount of land within spatial proximity to build the remaining two reactors. As a response to environmental risks posed by the building of a nuclear power plant in their community, local environmental activists created the Comité pour la Sauvegarde de Fessenheim et du Rhin (CSFR) in September 1970. CSFR members started occupying the land identified by the EDF. Jean-Jacques Rettig, founder of CSFR, stated:

> As we don't want a nuclear power station here, we don't need the meteorological pylon you've just built to find out which way the steam from the cooling towers will go. If you remove this pylon, we will cease our occupation.
>
> (extracted from Reporterre, 2008)

In April 1971, the first major public demonstration against civil nuclear power in Fessenheim attracted about 1500 participants, including 100 from across the German border less than a mile away. Other protests and mass demonstrations followed, attracting thousands each time, but these did not deter the French government, and work to build the plant started in January 1975. On 23 February, about 30,000 people reoccupied the site identified for the new reactors. Plans to remove protesters were abandoned by the French government due to the large numbers involved and the risk of attracting more adverse publicity. On 21 March, despite a local French court withdrawing the construction licence for the plant, the project continued with the two new reactors starting to function in 1977. The number of demonstrations and participants increased over time, peaking with the first large-scale environmental protests attracting 70,000 participants. Protestors came mainly from along the Rhine Valley, where other nuclear power plant projects notably Wyhl (Germany) and Kaiseraugst (Switzerland) were met with fierce local opposition rooted around proposed construction sites. Public concerns about nuclear energy increased after mass demonstrations at Wyhl, a location in the Baden region, 40 km north of Fessenheim, identified for a new nuclear plant project, widening the numbers opposed to nuclear energy projects across different segments of the local population. In the end, the Wyhl plan project was abandoned in 1975. This outcome is likely to have contributed to the cancellation of another nuclear energy plant project at Kaiseraugst in Switzerland, near the French border, which was also never realised.

Meanwhile, at Fessenheim, only two reactors of the initially planned four were built, with works related to Reactor 1 and Reactor 2 completed between 1971 and 1977, and between 1972 and 1978, respectively. Three local and global elements proved decisive to the abandonment of plans for Reactor 3 and Reactor 4. The relentless campaigning of the Alsatian anti-nuclear movement did not end with the commissioning of the two Fessenheim reactors in 1977–78, nor with the abandonment of the 12 others that had been planned in the Rhine Valley between Basel and Lauterbourg. Along the CSFR, new associations and local groups joined the protests: Stop Fessenheim, Stop Transports-Halte au Nucléaire, Citoyens Vigilants des Environs de Fessenheim, and Sortir du Nucléaire Network.

In the aftermath of the nuclear incident at Chernobyl in April 1986, the Commission de Recherche et d'Information Indépendantes sur la Radioactivité (CRIIRAD), an independent organisation founded by a group of scientists, started collecting information about levels of radioactive contamination in France. Faced with the impossibility of obtaining reliable data from the French government and companies operating in the nuclear energy sector, CRIIRAD decided to carry out its own measurements, setting up an independent radioactivity analysis in the Alsace region. The analysis, conducted in 1988, revealed significant levels of caesium-137 radioactive contamination.[5]

Demonstrations calling for the closure of the Fessenheim power plant continued throughout the 1980s–early 2000s, becoming more frequent from 2008 onwards, after the French Nuclear Safety Authority (ASN) expressed formal concerns against EDF for its lack of rigour in operating the nuclear power plant. The Fukushima (Japan) accident in March 2011 caused a further shift in public opinion regarding nuclear energy in France, Germany and Switzerland, reinvigorating the environmental campaigns of groups such as CSFR and the Sortir du Nucléaire Network. In June 2011, a roughly 5-km-long human chain formed around the site at Fessenheim. In 2012, the French Presidential Candidate François Hollande (Socialist Party) pledged to shut the nuclear plant if elected, as a prerequisite for an electoral pact with the Green Party.

Planning for ceasing operations at Fessenheim started after Hollande's election in the same year, although the announced deadline to close the nuclear power plant by the end of 2016 was not met. Between 2014 and 2017, the leaders of EJOs and resident groups met six times with four successive interministerial delegates appointed to oversee the nuclear power plant closure. In January 2018, a meeting was called between local campaigner leaders and Sébastien Lecornu, Secretary of State for Ecologic Transition. The meeting paved the way to a French–German binational strategy for decommissioning Fessenheim and led to the Project for the Future of the Fessenheim Territory (PAT), a programmatic document providing a roadmap for industrial reconversion that brought together relevant public and private stakeholders in France and Germany.

The PAT was then signed by the parties involved and approved in April 2018.[6] The Fessenheim nuclear power plant formally ceased operations in 2020, but the wider environmental conflict is far from being concluded. In February 2022, President Macron announced the construction of six new second-generation nuclear reactors by 2035. In May 2023, the proposal to build a new nuclear reactor in proximity of Fessenheim made by Frédéric Bierry, President of the European Community of Alsace, faced strong opposition from the Mayor of Fessenheim, the local EJOs and the Green Party. More recently, in January 2024, the French government announced plans for a further eight reactors (Reuters, 2024). These initiatives could be interpreted as an attempt to counteract the French opposition, notably the extreme right led by Marine Le Pen, which has turned more strongly towards nuclear energy.[7]

5. DISCUSSION

5.1. Cross-examination of the selected case studies

Table 3 provides an overview of the three selected case studies, setting out the multiple actors and institutions in each conflict, the associated PBL mechanisms, and the roles played by assigned and non-assigned leaders. The three case studies shed light on the breadth and depth of environmental conflicts, revealing the wide range of issues

Table 3. Cross-comparison of selected case studies.

Themes/aspects	NDL airport (West)	A45 motorway (Sud East)	Fessenheim nuclear power plant
Description	• Construction of a new airport and annexed high-speed trainline infrastructures	• Construction of a new motorway	• Construction of four nuclear reactors
Triggers for environmental conflict	• Negative impact on the local environment, climate change implications, negative effects on land usage and regional farming activity, public money wastage	• Negative impact on the local biodiversity and regional farming activity, public money wastage	• Public concerns about nuclear energy, radioactive contamination
Public organisations funding	• French government (60%) • Regional Loire-Atlantique assembly (40%)	• French government: Ministry of Transport (50%) • Regional Auvergne-Rhône-Alpes assembly (25%) • City of Saint Etienne (25%)	• French government (100%)
Private organisations	• VINCI group and SNCF	• VINCI group	• EDF
Formal agreements	• *Declaration d'Utilite Publique* (DUP – declaration of public interest)	• DUP	• DUP
Assigned national leaders[a]	• French government President (+) • French government Minister of Ecology (–)	• French government (+) • Minister of Transport (+)	French government President (+)
Assigned regional leaders[a]	• Regional assembly (+)	• President of the Region (+)	• n.a.
Assigned local leaders[a]	• City of Nantes (+)	• City of Saint Etienne (+) • City of Lyon (–)	• City of Fessenheim (+)
Non-assigned regional leaders[a]	• Solidarité Écologique, a local EJO (–) • 'Collective of City Councillors doubting the Relevance of the Airport' (CEPDA) (–)	• French Green Party	• French Green Party (–) • Comité pour la Sauvegarde de Fessenheim et du Rhin (CSFR) (–)
Non-assigned local leaders[a]	• Association de Défense des Exploitants Concernés par l'Aéroport (ADECA), ZADists and Association of People Affected by the NDL project (ACIPA)	• Sauvegarde des Coteaux du Lyonnais (SCL) (–)	• Stop Fessenheim (–) • Stop Transports-Halte au Nucléaire (–) • Sortir du Nucléaire Network (–)
Power mechanisms used by assigned leaders	• Evictions with policy authority (coercive power) • Local referendum (institutional power)	• Public poster campaign entitled *'Je la Veux'* ('I want it' – referring to the A45) created by the City of Saint Etienne (interpretive power)	• n.a.

(*Continued*)

Table 3. Continued.

Themes/aspects	NDL airport (West)	A45 motorway (Sud East)	Fessenheim nuclear power plant
Power mechanisms used by non-assigned leaders	• Private consultancy company report on social cost–benefit analysis (interpretive power) • Multiple pacific protests (network power)	• Naturalistas flora and fauna inventory report (interpretative power) • Pacific protests around concerts and farmer markets (network power) • Campaigns on multiple social media platforms (network power) • Letter sent to the Minister of Ecology (institutional power)	• Independent radioactivity analysis (interpretive power) • Multiple pacific protests involving German EJO associations (international network power)
Power mechanism used by local non-assigned leaders	• Area to defend ZAD residing (coercive power)	• Area to defend ZAD residing (coercive power)	• Area to defend ZAD residing (coercive power)
Events	• Terrorist attacks • New French President and government elected	• New President of the Region elected	• Nuclear incident occurred at Three Mile Island, PA, USA • Victory of the Green Party in the local election • New French President and government elected
Regional development and actual leaders	• Local farming in region • French government • ZADists	• Regional environmental and social projects focus on mobility and biodiversity protection • New President of the Region – assigned leader	• French–German binational strategic agreement for decommissioning Fessenheim

Note: [a]In favour of the project (+) and against the project (–).
EJO, environmental justice organisation; ZAD, *Zone à Développer*.

affecting approved, ongoing, or cancelled projects, and how these unfold over time. This approach usefully illuminates the different lines along which local leadership, formal or informal, can act or develop in each conflict.

A variety of key themes, trajectories and dynamics, emerge when examining and comparing the three projects. In the NDL case, the French government approved a DUP for the project, while a large cross-party coalition of local administrators started to campaign against it. In the A45 case, the three main local administrations involved in the project had different views, with one local administration even turning against the project once the French government approved the DUP. Both cases suggest the absence of strategic leadership as described by Gibney et al. (2009). This leadership deficit likely galvanised opposition from residents and EJOs, thereby widening the platform of discontent. The lack of consensus among leaders diluted key messages about the perceived economic benefits of the projects, shifting the focus exclusively to environmental costs. A more inclusive dialogue between local administrative leaders, residents, and EJOs in the very early stages of the project approval may have limited resource wastage and prevented the rise (or progression) of environmental conflicts.

This view is corroborated by the environmental conflict surrounding the nuclear power plant at Fessenheim: most residents initially supported the project for its economic returns, but revolted against it when its scale and wider impact became clearer. The cross-border collaboration between French and German protesters enlarged the sense of an 'affected community' going beyond the plant's location, spanning different areas of the Rhine. This situation demonstrates how PBL can be conditioned not only by the circumstances of each locality, but also by the very issue under focus (Connell & McManus, 2011; Sotarauta et al., 2017).

Another theme highlighted by our analysis is the emergence of non-assigned leaders and the variety of strategies they can adopt to oppose contentious projects. For instance, the NDL airport project shows how the ZADists used multiple communication strategies to attract new members and expand their networks within protest

movements. Social media was effectively utilised to expand public participation, fuelling clashes between police and protestors and making the ZAD symbolically significant as a display of coercive power in environmental conflict. Inspired by the NDL airport project, EJOs involved in the A45 motorway scheme organised a series of events including a farmers' market, festivals, and roundtable discussions, thereby integrating ecological initiatives into the regional infrastructure project.

The above findings reveal the increasing role played by 'bottom-up' leadership from within the community. For instance, the emergence of locally based leadership through collective action plans generated in the ZAD made it the central place for demonstrations. The protest progressively involved new actors, unlocking resources and knowledge from different components of the protest that contributed to the design of an alternative vision of regional development. Evidence gathered from the case studies show how formally assigned leaders failed to anticipate or identify the emergence of new leaders and roles from the protest, missing opportunities for collaborative solutions. This article confirms the need for assigned leaders with institutional power to work within and across imprecise institutional boundaries (Liddle, 2010; Sotarauta, 2019). In the presence of environmental conflicts, assigned leaders must learn how to act in ill-defined territories such as those characterised by protests.

5.2. PBL and local actors in environmental conflicts

The power mechanisms captured across the three case studies seem to follow a similar line of events. First, the involvement of large companies in projects approved by nationally assigned leaders generates a conflict between competing economic and environmental interests. Second, the presence and/or creation of EJOs serves as a display of institutional power opposing the project, with local scientist/professionals and non-local consultants working collaboratively to pool knowledge to enhance both the coherence and legitimacy of opponents. Third, the translation of interpretive power into institutional power facilitates decision-making processes such as cost–benefit analyses, shifting the debate from local to national levels. Finally, the shift of power from local to non-local and national assigned leaders eventually leads to overwhelming pressure to cancel projects, generating significant long-term implications in terms of regional economic development.

Our analysis identified the significant role played by local scientists and professionals in environmental conflicts and the consequences of this involvement in terms of PBL. In the case of the NDL project, the cost–benefit analysis commissioned by non-assigned leaders to an independent consulting company enhanced their visibility and influenced public opinion against the project. The interpretive power shown by non-assigned leaders asserted the legitimacy of the protest, conveyed information to diverse actors more consistently, and strengthened communication and networking across the many groups involved. Independent studies and reports created by the strategic alliance of local EJ leaders and scientists, can shift the terms of public debate, providing local leaders with an evidence base for opposing development projects. Sotarauta (2019, p. 10) highlights that 'strong emphasis should be put on local knowledge and collective contemplations as well as the importance of pooling locally embedded knowledge and extra-local knowledge to serve local development'. In the same vein, place-embedded, socio-ecological knowledge of local scientists and professionals often counterposes the interests of national governments, local administrations, and multinational companies. This opposition is at its strongest when early planning/approval for projects, focus solely on creating economic development and profit maximisation, neglecting the wider impact and effects on local communities, economies and ecosystems.

Another finding from our study is the disunity among assigned leaders at the local level when dealing with conflictive projects. Significant disagreement among local administrators was evident in the case of the A45 project: very different levels of support were identified among the three main local authorities involved, and no common strategy was developed for promoting the benefits and utility of the project to the wider public. Divergence between local leaders probably increased uncertainty about the project, contributing to the mass demonstrations and protests that occurred in the area. At Fessenheim, for instance, the discontent generated by the nuclear plant became transnational: an alliance between French and German activists was created which provided a platform to develop and invigorate anti-nuclear movements across Europe.

When confronted with new projects or circumstances, local leaders frequently try to establish new relationships, spanning the boundaries of their remits in an attempt to create new solutions to opportunities and challenges (Beer & Clower, 2014; Collinge et al., 2010; Picaud-Bello et al., 2022). Based on our analysis, boundary spanning between different leaders, whether these are in the administrative apparatus or from the campaign side, appears to be crucial to the formation of effective opposition to projects with adverse environmental consequences. Moreover, because many contextual factors affect the proposals for, and realisation of, large projects, different places and communities may respond to projects in a variety of ways (Beer et al., 2019). When assessing large projects, national and locally assigned leaders tend mostly to focus on public utility and return on investment. Consequently, they work hard to secure support and approval from individuals and agencies within their existing networks, while sometimes trying to create new connections at a local level to reach their objectives. However, this conduct frequently neglects key sustainability and environmental concerns which are currently reshaping the global policy agenda.

In the case of French environmental conflicts, neglecting the views expressed by local environmental groups and EJOs can lead to years of disruption, struggle and eventually failure. The halting or cancelling of major projects, in France as well as in other EU countries, signals a shift from an economic regional development based on

infrastructure outcomes to an alternative sustainable regional development with environmental protection. The promotion of regional economic development is still largely perceived as an interactive process between firms, various public or semi-public development agencies, and research institutions (Sotarauta, 2019). In this new policy context, it seems necessary to rethink decision-making and planning processes to prevent future environmental conflicts from happening.

The above considerations must be contextualised to both place and administrative structure. Focusing on environmental conflicts and their regional development dynamics, France's interactive modes of governance seem ineffective in terms of unlocking resources, knowledge, and capabilities across different administrative layers, or across organisations, actors and other groups at a local level (Sotarauta & Beer, 2017). In France, however, planning debates are tightly bound with civic equality arguments, reflecting a 'technocratic defence of the state' which frequently turn into disputes involving local communities. The relationship between local development, local heritage, and the surrounding environment is becoming the central concern, superseding economic considerations.

6. CONCLUSIONS

This article examined the relationship between PBL and environmental conflicts at a local level, investigating how local leaders respond to and deal with environmental conflicts, and the implications of these conflicts for PBL. Findings from both quantitative modelling and case studies reveal the cruciality of formal and informal leadership in addressing local environmental conflicts, and the importance of dealing with different actors or groups in preventing or defusing protests.

Our analysis identifies the key role and impact of local scientists and professionals on infrastructural projects and their environmental impact. Local non-assigned leaders campaigning against projects appear more effective at influencing narratives and debates about project developments than formally assigned leaders, for instance using embedded knowledge extracted from local sources as well as extra-knowledge provided by experts and consultants to sustain their arguments. In addition, non-assigned leaders seem to display a stronger interpretive power in the context of environmental conflicts, forcing assigned leaders to reassess and often backtrack on projects and investments already approved. In such circumstances, high levels of fragmentation among assigned leaders about projects' trajectories further enhance protests and discontent, hindering project completions.

Our study unveils multiple implications for PBL associated environmental conflicts. PBL is not a straightforward process. It is characterised by fragmented actions and events involving several organisations and leaders, and there is no uniformity in the ways different sources of power combine or interact (Budd & Sancino, 2016; Sotarauta et al., 2017). This can create multiple scenarios when environmental conflicts arise. In the attempt to leverage interpretive and networking power, assigned leaders could involve local scientists and professionals more effectively in the planning phase of large infrastructural projects. The contributions of the latter can provide greater emphasis on ecological, social, and cultural issues, which can defuse environmental conflict, and thereby possibly help protect investments.

Moreover, our findings suggest that PBL approaches should be reassessed to prevent environmental conflicts while pursuing regional economic development. The construction of large infrastructural projects require regional systematic and physical value chain perspectives. Regional economic development mainly adopts mainstream endogenous theory, emphasising investments in physical capital (Beer et al., 2019). This approach is still anchored to studies developed in the 1990s, when scholars and policymakers focused their attention on factors contributing to economic growth such as education and innovation (Rodríguez-Pose, 2013). As such, research on the environmental consequences resulting from these investments is frequently neglected.

Climate change, environmental degradation, resource depletion, and water and food shortages are defining global issues of our time. Local and national leaders are called to pursue more sustainable trajectories when planning for large projects, However this exercise frequently lacks coordination among relevant stakeholders across different administrative layers. Moreover, assigned leaders often fail to effectively include other important leaders in environmental campaigns at local, regional, and national levels. Ignoring the lessons of other failed projects and underestimating the wider climate action agenda generates a fertile terrain for environmental conflicts. These conflicts can last for years, disrupting lives, affecting communities, and bringing uncertainty in terms of economic growth.

This article addresses an original topic, bringing new knowledge about the relationship between leadership and environmental conflicts. Nonetheless, it is appropriate that we acknowledge some limitations. First, as environmental conflicts are constantly evolving, the information provided by the EJAtlas is very fluid. Our analysis tries to control for this variation by encompassing a very wide range of conflicts across a large timespan. Second, this study compares French and EU data but does not investigate individual countries or regions; the absence of consistent information prevented the geographical extension of our analysis. Third, we are aware that the specific characteristics of the three case studies may limit the generalisability of our results. Finally, time and financial constraints prevented the acquisition of more qualitative information, for instance, interviews with local administrators and campaign leaders, which would have enriched our study.

In conclusion, our findings provide new perspectives on the relationship between local leadership and environmental conflicts. Because their association is multifaceted, the formation of formal and informal PBL policies and strategies coalescing around large projects remains significantly underresearched. Given the paucity of studies

targeting the effects of environmental conflicts on local communities, this article provides an avenue for new research to better understand the potential of strategic PBL for avoiding the most negative impacts of infrastructural developments on local livelihoods, cultures and landscape.

ACKNOWLEDGEMENTS

The authors thank the associate editors and two anonymous referees for all the feedback and guidance received. They are also grateful for the valuable comments received from participants at the 'Leadership & Sustainability in Europe: Where Now, What Next' workshop, organised by the EU*Asia Institute, ESSCA School of Management, Angers, France, 12–13 October 2023.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in the EJAtlas database at https://ejatlas.org/.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

NOTES

1. For definitions for all codes, see the EJAtlas website at https://ejatlas.org/backoffice/cms/en/definitions/.
2. Two of the coauthors of this study have documented several environmental conflicts in France reported on the EJAtlas; analysis was performed with R software package version 4.2.3; and RStudio version 2023.03.0+386.
3. See https://reporterre.net/La-carte-des-luttes-contre-les-grands-projets-inutiles/.
4 See www.nona45.fr/.
5. See https://www.criirad.org/la-criirad/presentation/.
6. For France, it was signed by EDF, the Ministry of Energy and Social Transition, and representatives of several French local authorities interested by the project, such as the Grand Est Region Assembly, the Prefecture of Haut Rhin department, and the Haute Rhin and Bas Rhin Department Councils. From the German side, the PAT was signed by the German Embassy in Paris, the Baden Württemberg Lander (Regional Assembly), and representatives of Breisgau-Hochschwarzwald District, the City of Freiburg im Breisgau, and the City of Breisach.
7. In June 2024, Mme Le Pen even pledged to reopen the Fessenheim nuclear power plant, though engineers have declared this 'technically impossible'.

ORCID

Ignazio Cabras http://orcid.org/0000-0002-3418-8553
Marcel Llavero-Pasquina http://orcid.org/0000-0002-7055-0812
Katia Picaud-Bello http://orcid.org/0000-0001-7538-0210
Gabriel Weber http://orcid.org/0000-0003-2120-1648

REFERENCES

Aguilera, T. (2021). 'Contre la métropole et son monde': mouvements d'occupation et ZAD en France au XXI[e] siècle. In *Nouvelle sociologie politique de la France* (pp. 217–229). Armand Colin.

Akbulut, B., Demaria, F., Gerber, J. F., & Martínez-Alier, J. (2019). Who promotes sustainability? Five theses on the relationships between the degrowth and the environmental justice movements. *Ecological Economics*, *165*, 106–118. https://doi.org/10.1016/j.ecolecon.2019.106418

Appleton, A. (2013). The new social movement phenomenon: Placing France in comparative perspective. In R. Elgie (Ed.), *The changing French political system* (pp. 57–75). Routledge. https://doi.org/10.4324/9781315038414

Ayres, S. (2014). Place-based leadership: Reflections on scale, agency and theory. *Regional Studies, Regional Science*, *1*(1), 21–24. https://doi.org/10.1080/21681376.2013.869424

Beer, A., Ayres, S., Clower, T., Faller, F., Sancino, A., & Sotarauta, M. (2019). Place leadership and regional economic development: A framework for cross-regional analysis. *Regional Studies*, *53*(2), 171–182. https://doi.org/10.1080/00343404.2018.1447662

Beer, A., & Clower, T. (2014). Mobilizing leadership in cities and regions. *Regional Studies, Regional Science*, *1*(1), 5–20. https://doi.org/10.1080/21681376.2013.869428

Bentley, G., Pugalis, L., & Shutt, J. (2017). Leadership and systems of governance: The constraints on the scope for leadership of place-based development in sub-national territories. *Regional Studies*, *51*(2), 194–209. https://doi.org/10.1080/00343404.2016.1181261

Bontempi, A., Del Bene, D., & De Felice, L. (2021). Counter-reporting sustainability from the bottom up: The case of the construction company WeBuild and dam-related conflicts. *Journal of Business Ethics*, *182*(1), 7–32. https://doi.org/10.1007/s10551-021-04946-6

Bontempi, A., Venturi, P., Del Bene, D., Scheidel, A., Zaldo-Aubanell, Q., & Zaragoza, R. M. (2023). Conflict and conservation: On the role of protected areas for environmental justice. *Global Environmental Change*, *82*, 102740. https://doi.org/10.1016/j.gloenvcha.2023.102740

Bowden, A., & Liddle, J. (2018). Evolving public sector roles in the leadership of place-based partnerships: From controlling to influencing policy? *Regional Studies*, *52*(1), 145–155. https://doi.org/10.1080/00343404.2017.1346369

Brinke, L., & Faber, J. (2011). *Review of the social cost–benefit analysis of Grand Ouest airport comparison with improvements of Nantes Atlantique*. CE Delft. https://ce.nl/wp-content/uploads/2021/03/CE_Delft_7431_Review_Social_Cost_Benefit_Analysis_Final_1321613440.pdf

Budd, L., & Sancino, A. (2016). A framework for city leadership in multilevel governance settings: The comparative contexts of Italy and the UK. *Regional Studies, Regional Science*, *3*(1), 129–145. https://doi.org/10.1080/21681376.2015.1125306

Cole, A. (2008). *Governing and governance in France*. Cambridge University Press.

Collinge, C., & Gibney, J. (2010). Place-making and the limitations of spatial leadership: Reflections on the Øresund. *Policy Studies*, *31*(4), 475–489. https://doi.org/10.1080/01442871003723432

Collinge, C., Gibney, J., & Mabey, C. (2010). Leadership and place. *Policy Studies*, *31*(4), 367–378. https://doi.org/10.1080/01442871003723242

Connell, J., & McManus, P. (2011). *Rural revival? Place marketing, tree change and regional migration in Australia*. Ashgate.

Gibney, J., Copeland, S., & Murie, A. (2009). Toward a 'new' strategic leadership of place for the knowledge-based economy. *Leadership*, *5*(1), 5–23. https://doi.org/10.1177/1742715008098307

Gronn, P. (2002). Distributed leadership. In K. Leithwood, P. Hallinger, K. Seashore-Louis, G. Furman-Brown, P. Gronn, W. Mulford, & K. Riley (Eds.), *Second international handbook of educational leadership and administration* (pp. 653–696). Kluwer.

Hambleton, R., & Howard, J. (2013). Place-based leadership and public service innovation. *Local Government Studies*, *39*(1), 47–70. https://doi.org/10.1080/03003930.2012.693076

Hartog, D., House, R., Hanges, P., Ruiz-Quintanilla, S. A., & Dorfman, P. (1999). Culture specific and cross-culturally generalizable implicit leadership theories: Are attributes of charismatic/transformational leadership universally endorsed? *The Leadership Quartery*, *10*(2), 219–256. https://doi.org/10.1016/S1048-9843(99)00018-1

Healey, P. (1998). Building institutional capacity through collaborative approaches to urban planning. *Environment and Planning A: Economy and Space*, *30*(9), 1531–1546. https://doi.org/10.1068/a301531

Hecht, G. (2009). *The radiance of France, new edition: Nuclear power and national identity after World War II*. MIT Press. https://doi.org/10.7551/mitpress/7822.001.0001

Hemphill, L., McGreal, S., Berry, J., & Watson, S. (2006). Leadership, power and multisector urban regeneration partnerships. *Urban Studies*, *43*(1), 59–80. https://doi.org/10.1080/00420980500388736

Hooghe, L., & Marks, G. (2001). *Multi-level governance and European integration*. Rowman & Littlefield.

Jaunet, C. (2019, October 16). Notre-Dame-des-Landes. Fin de lutte du collectif des élus anti-NDDL!, *Ouest France*. https://www.ouest-france.fr/environnement/amenagement-du-territoire/nddl/notre-dame-des-landes-fin-de-lutte-du-collectif-des-elus-anti-nddl-6568054

Leca, J. (1996). La démocratie à l'épreuve des pluralismes. *Revue Française de Science Politique*, *46*(2), 225–279.

Liddle, J. (2010). Twenty-first-century public leadership within complex governance systems: Some reflections. *Policy and Politics*, *38*(4), 657–663. https://doi.org/10.4236/me.2012.35079

Martínez-Alier, J. (2012). Environmental justice and economic degrowth: An alliance between two movements. *Capitalism Nature Socialism*, *23*(1), 51–73. https://doi.org/10.1080/10455752.2011.648839

Martínez-Alier, J., Healy, H., Temper, L., Walter, M., Rodriguez-Labajos, B., Gerber, J. F., & Conde, M. (2011). Between science and activism: Learning and teaching ecological economics with environmental justice organisations. *Local Environment*, *16*(1), 17–36. https://doi.org/10.1080/13549839.2010.544297

Nicholds, A., Gibney, J., Mabey, C., & Hart, D. (2017). Making sense of variety in place leadership: The case of England's smart cities. *Regional Studies*, *51*(2), 249–259. https://doi.org/10.1080/00343404.2016.1232482

Oberti, C. (2012, February 22). French anti-airport protesters prepare for battle. *France 24*. https://www.france24.com/en/20121112-french-anti-airport-protesters-prepare-pitched-battle

Orange, G. (2006). French territorial administration and changes in public management. In *State and local government reforms in France and Germany: Divergence and convergence* (pp. 111–124). Springer VS.

Picaud-Bello, K., Stevens, E., Cloutier, L. M., & Renard, L. (2022). Coordinating service ecosystems for innovation: The case of tourism destination innovation projects. *Industrial Marketing Management*, *106*, 444–460. https://doi.org/10.1016/j.indmarman.2022.08.013

Reuters. (2024, January 7). *As nuclear debate nears, French minister sees potential for 14 new reactors* [Press Release]. https://www.reuters.com/world/europe/nuclear-debate-nears-french-minister-sees-potential-14-new-reactors-2024-01-07/

Rodríguez-Pose, A. (2013). Do institutions matter for regional development? *Regional Studies*, *47*(7), 1034–1047. https://doi.org/10.1080/00343404.2012.748978

Scheidel, A., Del Bene, D., Liu, J., Navas, G., Mingorría, S., Demaria, F., & Martínez-Alier, J. (2020). Environmental conflicts and defenders: A global overview. *Global Environmental Change*, *63*, 102104. https://doi.org/10.1016/j.gloenvcha.2020.102104

Schlosberg, D., & Collins, L. B. (2014). From environmental to climate justice: Climate change and the discourse of environmental justice. *Wiley Interdisciplinary Reviews: Climate Change*, *5*(3), 359–374. https://doi.org/10.1002/wcc.275

Schofield, H. (2012, November 27). *Battle lines drawn over new airport for Nantes*. BBC News. https://www.bbc.co.uk/news/world-europe-20502702

Sotarauta, M. (2016). Place leadership, governance and power. *Administration*, *64*(3/4), 45–58. https://doi.org/10.1515/admin-2016-0024

Sotarauta, M. (2019). Quick conceptual reflections on place-based policy, place sensitivity and place leadership. Discussion paper prepared for the RSA Place-based Policy Expo. Regional Studies Association (RSA).

Sotarauta, M., & Beer, A. (2017). Governance, agency and place leadership: Lessons from a cross-national analysis. *Regional Studies*, *51*(2), 210–223. https://doi.org/10.1080/00343404.2015.1119265

Sotarauta, M., Beer, A., & Gibney, J. (2017). Making sense of leadership in urban and regional development. *Regional Studies*, *51*(2), 187–198. https://doi.org/10.1080/00343404.2016.1267340

Sotarauta, M., & Pulkkinen, R. (2011). Institutional entrepreneurship for knowledge regions: In search of a fresh set of questions for regional innovation studies. *Environment and Planning C: Government and Policy*, *29*(1), 96–112. https://doi.org/10.1068/c1066r

Temper, L., Avila, S., Del Bene, D., Gobby, J., Kosoy, N., Le Billon, P., & Walter, M. (2020). Movements shaping climate futures: A systematic mapping of protests against fossil fuel and low-carbon energy projects. *Environmental Research Letters*, *15*(12), 123004. https://doi.org/10.1088/1748-9326/abc197

Vallance, P., Tewdwr-Jones, M., & Kempton, L. (2019). Facilitating spaces for place-based leadership in centralized governance systems: The case of Newcastle city futures. *Regional Studies*, *53*(12), 1723–1733. https://doi.org/10.1080/00343404.2019.1598620

Wallace, W. (2017). European foreign policy since the Cold War: How ambitious, how inhibited? *The British Journal of Politics and International Relations*, *19*(1), 77–90. https://doi.org/10.1177/1369148116685297

Warlenius, R., Pierce, G., & Ramasar, V. (2015). Reversing the arrow of arrears: The concept of 'ecological debt' and its value for environmental justice. *Global Environmental Change*, *30*, 21–30. https://doi.org/10.1016/j.gloenvcha.2014.10.014

Wollmann, H. (2004). Local government reforms in Great Britain, Sweden, Germany and France: Between multi-function and single-purpose organisations. *Local Government Studies*, *30*(4), 639–665. https://doi.org/10.1080/0300393042000318030

Wollmann, H. (2010). Comparing two logics of interlocal cooperation: The cases of France and Germany. *Urban Affairs Review*, *46*(2), 263–292. https://doi.org/10.1177/1078087410377608

Wollmann, H., & Bouckaert, G. (2007). State Organisation in France and Germany between territoriality and functionality. *Public Administration Issues*(2–3), 59–90. https://doi.org/10.1007/978-3-531-90271-5_1

World Highways. (2016, May 3). *VINCI Autoroutes wins the A45 toll motorway contract in France. Press release*. https://www.worldhighways.com/wh8/news/vinci-autoroutes-wins-a45-toll-motorway-contract-france