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SPECIAL FEATURE: CASE REPORT

The EJAtlas: Ecological Distribution Conflicts as Forces for Sustainability

'We have a right to breathe clean air': the emerging environmental justice movement against waste incineration in cement kilns in Spain

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Abstract Waste is increasingly being used as an alternative to conventional fossil fuels in cement kilns worldwide. This has led to the emergence of socio-environmental conflicts in many countries in which local groups articulate a common struggle against the cement industry, a new target within the international anti-incineration movement. This case report aims at characterising this emerging movement against waste incineration in cement kilns in Spain and explores its main four discursive dimensions in relation to the concept of environmental justice. We argue that the movement against waste incineration in cement kilns is incipient and growing in Spain, and it uses a distinctive vocabulary to refer to the environmental justice dimension of the struggle.

Keywords Co-incineration · Local environmental struggles · Socio-environmental conflicts · Waste controversies · Zero waste · Environmental contestation

Introduction

The global production of cement, the most widely used of all construction materials, has been undergoing a series of transformations during the last 20 years. This industry has traditionally relied on coal, oil, petroleum coke and natural gas to fuel its kilns, making cement production one of the most energy-intensive and polluting industrial processes globally. Cement production, having experienced the biggest relative growth since 1970 compared to the extraction of minerals and other manufacturing products, is a major contributor to climate change (Fischedick et al. 2014), generating 5% of global CO_2 emissions (Karstensen 2007). In fact, it has been listed as the only non-fossil fuel producer in the top 90 companies responsible for 63% of all greenhouse gas (GHG) emissions (Heede 2014). The high energy costs associated with this industry together with the rising concerns and opportunities related to climate change have encouraged cement companies worldwide to modify their production practices by increasingly substituting conventional fossil fuels for industrial, municipal and hazardous waste, a process also referred to as co-incineration. This increasing practice has also been supported by a diverse range of big environmental groups (WWF International 2008), enthusiastic engineering scholars (e.g., Genon and Brizio 2008; Madlool et al. 2011), and key European institutions working at the global level such as the German Development Cooperation Agency (GIZ) or the Nordic Development Fund. However, in the absence of strict environmental guidelines, this practice can cause adverse environmental impacts such as high concentrations of particulate matter in ambient air, ground-level ozone, acid rain, and water quality deterioration (Madlool et al. 2011).

The increasing use of waste as fuel has also led to the emergence of socio-environmental conflicts in many countries in which local groups and environmental organisations, working at both national and international levels, articulate a common struggle against co-incineration. Thus, the cement industry has become a new target within the

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international anti-incineration movement, which has historically opposed waste disposal in incineration industrial facilities mainly. Many groups against co-incineration have emerged in countries such as Spain, Mexico, Slovenia, South Africa and India, to name just a few (see EJOLT Atlas), and are active members of the broader international anti-incineration alliance GAIA. While we agree with the opponents to co-incineration that this type of struggle can be categorised within the wider anti-incineration struggle, its singularities (i.e., the type of targeted industry, the specific legislation in place, and the groups mobilised and their strategies) indicate the value and interest in analysing it on its own.

Cement plants are located in peripheral areas, usually next to other industrial facilities, typically in working class neighbourhoods or rural areas. Despite the construction of many plants dates back to the first half of the 20th century and was partly determined by accessibility to limestone, a key component in cement production, today the sites of these industrial plants characterise environmentally deprived areas. In these areas, health impacts from pollution have greater impact on local residents (García-Pérez et al. 2015). Conflicts in this context can therefore be framed from an environmental justice perspective. Moreover, opponents to co-incineration have to fight the cement industry, a different kind of industry than the usual incinerators. The cement industry is one of the most powerful sectors in the primary economy, with a global market value much higher than that of waste incineration technologies, and with a corporate structure that has developed towards a strong vertical integration, with important merging of key companies (e.g., Holcim-Lafarge in 2015) and oligopoly practices. Additionally, the cement industry has not been on the spotlight of social protest in the same way as the incineration industry and it has, therefore, enjoyed a much lower level of public scrutiny.

Groups opposing waste incineration facilities have commonly used an environmental justice discourse frame and vocabulary to characterise their struggles, particularly in the US, where the concept of environmental justice is deeply rooted in its political history and culture. However, despite anti-incineration struggles often being used as real-world examples to develop the conceptual framework of environmental justice itself, its use within the movement against co-incineration in cement kilns has remained particularly understudied. To what extent do groups campaigning against co-incineration articulate their struggle on the basis of an environmental justice framework?

This case report contributes to the debate about how groups involved in local environmental struggles replicate, appropriate, adapt and use a frame of environmental justice into their own specific social contexts and cultural traditions. We specifically examine the movement against co-incineration in Spain, which is documented on the Atlas of Environmental Justice (http://www.ejatlas.org) with four struggles; we portray its main aspects and its evolution and we then identify and classify the main dimensions of the discourse of this emerging movement. Our aim is to explore to what extent and how an environmental justice discourse is translated to a relatively new area of struggle in an understudied and relatively wealthy context, such as Spain. As Jiménez-Sánchez (2005) points out, it is important to address theoretical and knowledge gaps in high-income countries around environmental justice conflicts and to balance the predominance of case studies from the USA and Northern Europe.

Environmental justice: a transnational master frame

Environmental justice is a widespread concept that tries to capture the unequal distribution of environmental risks, toxic burdens and responsibilities produced by industrial activities. Originally developed in the USA during the 1980s from the alliance between the civil rights movement and the anti-toxic movement (McGurty 1997; Taylor 2000), the term and its related vocabulary have spatially expanded, both in places and topics (Sze and London 2008) and has increasingly been used in both local and global environmental struggles (Martinez-Alier et al. 2016; Walker 2009), in research, and even as a principle to guide policy-making (Bullard and Johnson 2000; Walker 2012). The primary strength of the concept relies on recognising the socio-environmental disadvantages of some groups within a social structure (e.g., poor, indigenous, black or ethnic minority communities). As Schlosberg (2013) points out, the term quickly evolved beyond concerns on unequal distribution to expand to notions about the definition of the environment, the root causes of environmental injustices and broader conceptions of 'justice' such as climate justice or food justice. In fact, scholars have thoroughly discussed the different dimensions of environmental justice (e.g., Figueroa 2004; Schlosberg 2009, 2013; Walker 2012), and despite existing nuances between the different approaches, there is a general consensus about three common and interrelated aspects that can be identified, namely: (a) equity and distribution (a fair share of environmental benefits and harms); (b) recognition (engagement on issues of cultural meaning such as identity or knowledge) and; (c) participation (a demand for inclusive decision-making). Additionally, following Agyeman and Evans (2004), we also consider a fourth dimension of environmental justice, namely (d) just sustainability (advancing strong sustainability goals with a comprehensive set of political recommendations to address the problem at stake).

For more than 30 years, struggles against waste incineration facilities have successfully articulated public concerns surrounding public health and the environment, and become prime examples for the analysis of environmental justice movements. In fact, the concept of environmental justice has been used strategically by campaigning groups to frame their struggles, serving the purpose of 'scaling-up' the political voice of a local group and connecting it to wider constituencies, at the national and international levels (Rootes 2009, 2013). Most anti-incineration cases reported from the USA illustrate the rise of the environmental justice movement against the institutionalisation of environmental racism (e.g., Bullard 1993; Bullard and Lewis 1996; Cole and Foster 2001; Pellow 2004). Interestingly, there is at least one case reported from Ireland in which the environmental justice frame was intentionally omitted or hidden in the context of the struggle (Davies 2006). However, there is a lack of studies specifically connecting the struggle against co-incineration to an environmental justice approach. In the following sections, we present the case of the Spanish struggle against co-incineration and examine to what extent (and for what reasons) is an environmental justice framework actually used (or not) in this struggle.

Methods

This paper has been developed from a broader project, namely the EJOLT project (http://www.ejolt.org/), in which, many worldwide relevant socio-environmental conflicts were collected and systematised. As part of that project, in 2013 we originally used both the collective mapping methodology described by Temper, Del Bene and Martinez-Alier (2015) and also four semi-structured interviews to spokespersons of four local struggles, which are currently represented in the EJ Atlas. Nevertheless, to go deeper and examine the main aspects shaping the discourse of the Spanish anti-co-incineration movement, we collected additional data intermittently between 2011 and 2016, broadening both the sample of local environmental struggles forming the Spanish anti-co-incineration movement and the sources of data. These data have been gathered by a combination of additional nine semi-structured interviews, and a collection of key documents, whose analysis has been informed by a personal experience of participating during 7 years in this struggle.

We conducted a total of thirteen semi-structured interviews with spokespersons from most groups resisting co-incineration in Spain: eleven of them were local activists fighting co-incineration in different struggles; another was the national coordinator of the waste campaign of a well-known Spanish federation of local environmental groups; and the last interviewee was a representative of the Global Alliance for Incineration Alternatives/Zero Waste Europe who has been involved in the Spanish anti-incineration struggle since 2011, and is also one of the authors of this paper. These interviews were structured around the activists' definition of the main problems and challenges at stake within their movement, their demands, their relationships with national and international networks and their definition of environmental justice (i.e., its meanings, limitations and uses). Nine of the interviews (three women, six men) were transcribed, coded and analysed with the qualitative software Atlas.ti, using broad pre-defined codes (e.g., health, demands, definitions, challenges or alternatives, among others) that were then grouped, refined into narrower categories which then were developed to elicit the emerging commonalities characterising this movement's discourse.

The activist nature of this paper's authorship allows us to explore hybrid forms of activism and science production (Casas-Cortés et al. 2008), contributing to what Escobar (2008) calls 'activist knowledge', and provides an insightful unique viewpoint about this struggle. The activist researcher co-authoring this paper has participated as a speaker on sustainable waste management and climate change, has provided updates from incineration campaigns in other global regions and also from relevant global policy processes where the cement industry is actively lobbying, such as the UNFCCC, the Intergovernmental Panel on Climate Change (IPCC), and the Basel and Stockholm Conventions. Additionally, she has led the co-organisation of the first and second international gatherings of groups involved in the anti-co-incineration struggle. This experience has allowed her to gather documents and exchange key information with representatives of this movement, and has been extremely useful both for describing its context and also for providing a path of trust to easily access all the informants. While the knowledge acquired through the experience at these events informs our analysis in this paper, the primary source for evidence has been the interview material.

Lastly, several documents such as press releases, radio interviews, policy reports and publications from relevant cement companies have also been consulted to present a more nuanced picture of the context of the movement.

The story of the struggle

While the initial attempts of the Spanish cement industry to burn industrial waste in cement plants date back to the late 1980s, this practice gained traction during the mid-to-late 1990s, when several cement plants applied for permits to burn industrial waste (FLACEMA 2007), following an

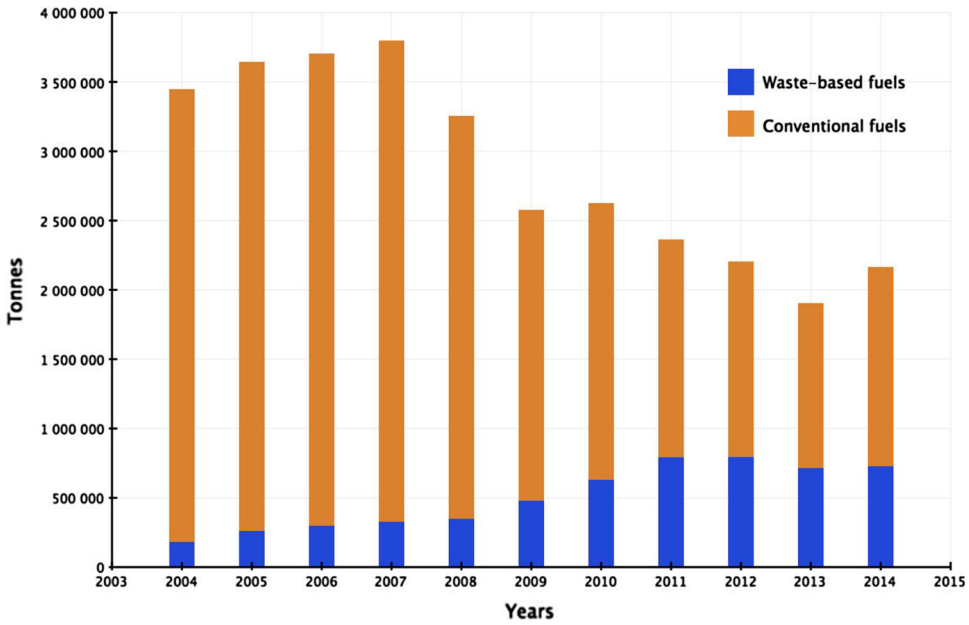

Fig. 1 Evolution of use of waste-based fuels in relation to the total amount of fuel used in Spanish cement kilns (2004–2014) *Source* FLACEMA 2016

international trend increasing the use of waste as fuel in the cement sector (Chatziaras et al. 2016). At the beginning of 2000, in the context of the European food scandal of "mad cow" disease, the practice further expanded as cement plants applied to burn the excesses of meat and bone meal resulting from the epidemic, following by the progressive use of other types of industrial and municipal solid waste. Figure 1 shows the evolution of consumption of waste-based fuels between 2004 and 2014 in relation to the total fuel used in Spanish cement kilns. As the figure shows, there is a significant increase during the period 2008–2010. By 2012, waste incineration in cement plants was a common practice in 28 of the 35 cement plants operating in Spain at that time (FLACEMA 2016). By 2014, 23.2% of fuel used in cement kilns was waste-based (FLACEMA 2016). As of 2016, the typology of 'waste-based fuels' used in Spanish cement kilns includes forestry biomass, industrial biomass residues such as cellulose or vegetable waste from the food industry, meat and bone meal, animal fat or vegetable oils, sewage sludge, used tyres, sawdust or treated wood, textile waste, oil residues, mineral oils, plastics, solvents, and Refused Derived Fuel (RDF), which is produced by shredding and dehydrating municipal solid waste (FLACEMA 2016; Greenpeace 2012).

Contrasting with an initial absence of public notice, Spanish lobby groups such Fundación CEMA or Fundación Laboral Andaluza del Cemento y el Medio Ambiente (FLACEMA) have been determinedly promoting co-incineration since the mid 2000s, both nationally and internationally as an environmentally friendly development path for the cement industry. Their main argument claims that co-incineration reduces GHG emissions due to the diversion of waste from landfills and decreases the use of fossil fuels (FLACEMA 2007). This aligns with a global strategy of the cement industry to present a more environmental-friendly image. For instance, the Cement Sustainability Initiative, an international lobby group of 24 cement companies with operations in over 100 countries and which accounts for around 30% of global cement production, has been instrumental in the promotion of co-incineration as a strategy to combat climate change in key climate policy and scientific arenas such as the UNFCCC and the IPCC (The Cement Sustainability Initiative 2017). Furthermore, given that few multinational companies control the sector, namely Lafarge-Holcim, Cemex, Italcementi Group, Cementos Portland Valderribas and Grupo Cimpor, a similar approach is used to promote co-incineration in different countries, triggering socio-environmental conflicts on this issue elsewhere (e.g., see EJ Atlas cases in Slovenia, Mexico, Portugal, Ireland and China).

In economic terms, co-incineration has proven to be a very profitable strategy for the cement industry, allowing a triple income from (a) its waste disposal services paid by the relevant authorities, (b) savings from costs related to fossil fuels replaced by waste, and (c) trading emissions permits corresponding to those fossil fuel savings, some of which have been assigned to these facilities at no cost through the EU Emission Trade Scheme (Fundació ENT 2015; Greenpeace 2012; Sandbag 2016). Moreover, it is important to note that the significant increase in the use of waste-based fuels coincides with the severe economic crisis in 2008–2010 (see Fig. 1), which, among other impacts, caused a drastic decline in the demand for cement in Spain. In fact, as Naredo (2009) notes, Spanish cement production

was the highest in Europe at its peak in 2007 but by 2013 production had fallen by 50%, with the closure of nine factories and significant layoffs of workers. Also, at the European level, co-incineration is considered as a promising business opportunity, making the operation of large combustion plants such as cement plants more economically attractive (European Commission 2016). In our view, this could suggest that the increase of co-incineration in Spain could have developed primarily as a strategy to compensate cement production losses—and hence driven by economic interests—rather than to address environmental concerns, as some of the aforementioned lobby groups in Spain have claimed.

Opposition to waste incineration in cement plants has grown in recent years, mainly driven by civil society groups neighbouring the cement plants who argue that using waste for cement production is significantly more toxic than using conventional fossil fuels and generates unacceptable harm for people and their environments. This claim is especially relevant taking into account that as Rootes (2009) and O'Brian (2008) point out, since World War II the composition of most everyday products contains an increasing amount of synthetic chemicals whose combined synergetic effects, mostly unknown, can be potentially toxic at consumption and disposal stage. Thus, the existence of this widespread toxic mix reinforces the argument of these groups who thoroughly question the actual benefits of the industry's change of fuel. These groups are often organised through networks, and share information, resources and, to certain degree, a collective identity with similar national and international groups. While the common target of all the different groups is specifically the use of waste-based fuels in cement kilns, there is not a common position on whether their opposition should also extend against cement production itself. While some groups are targeting the use of waste-based fuels in cement kilns and also the production of cement, actually most of them focus their demands only onto not to using waste-based fuel in cement kilns. However, this is currently an active and evolving debate within this movement.

Typically, these groups prioritise their local campaigns to prevent co-incineration in their towns with the aim of avoiding, in the first place, a direct and immediate source of potential contamination in their communities. These groups have also increasingly devoted time and energy to create coordination structures at the regional, national and international level, thus nullifying the criticism of Not In My Backyard (NIMBY) as selfish, which is often levelled at those who oppose co-incineration (e.g., Kikuchi and Gerardo 2009). In fact, as in many other struggles that both focus on the local scale and, at the same time, transcend it (Rootes 2013), the evolution of the Spanish network against co-incineration shows an increasing interconnectedness between local groups at multiple scales, thereby fostering supportive alliances and developing common actions, especially regarding zero waste and climate justice campaigns.

The Spanish network against waste incineration in cement plants was created in Madrid in 2009 by representatives from three local struggles: Bierzo Aire Limpio, Toledo Aire Limpio and Montcada Aire Net. The first annual gathering of the network was celebrated in Ponferrada in 2009 and since then it has been organised almost annually, in Toledo (2010), Montcada i Reixac (2012), Olazagutía (2013), Morata de Tajuña (2014), Vilafranca del Penedès (2015) and Alcalá de Guadaíra (2016). Moreover, the first international gathering against co-incineration took place in Barletta, Italy (2014), with representatives from Spain, UK, Slovenia, Serbia and Italy. The second took place in Montcada i Reixac, Spain (2015) with representatives from Mexico, India, Costa Rica, Argentina, Tanzania, the Philippines, Chile, Mauritius, El Salvador, China, Slovenia, and the USA.[1]

At the end of 2016, the Spanish network consists of eighteen civil society organisations and networks of allied organisations active on this particular struggle, so-called *platforms*. Some of these groups or networks have also organised themselves in regional networks to develop specific strategies and target their regional institutions. Generally, these groups and networks are maintained on a volunteer basis, with consensus-based decision-making and a strong sense of solidarity and commitment to the objectives of the campaigns, even if the levels of activity vary. Most of these groups are also active on other social and environmental issues, ranging from the defense of public health systems, to other environmental protection campaigns in their local areas. Some groups are neighbourhood associations that organise other activities within their neighbourhood and therefore are very community rooted, and with a strong organising background. Amongst the wide range of activities undertaken by these groups, two main tactics need to be highlighted: firstly, the specialisation in developing legal procedures to challenge a given environmental authorisation for co-incineration, undertaken with support from professional lawyers and toxics experts, which has proven successful on a number of occasions (e.g., Diario de León 2016; Ecologistas en Acción 2015; Europa Press 2015); and secondly, launching education and awareness-raising activities with support from health, toxic and waste management experts to raise further social pressure, support and understanding.

The Spanish movement against co-incineration certainly presents many characteristics that connect with some

[1] Reports on most of these events can be found at https://www.zerowasteeurope.eu/zwe-blog/.

aspects of an environmental justice framework. However, the history of environmentalism in Spain differs substantially from the USA. Spanish environmentalism has not evolved alongside other important civil rights struggles. In fact, not only was the environmental movement in Spain born later than in other European countries, but also it developed with less financial support and had a lower impact on both political and legislative institutionalisation (Fernández 1999). In the next sections, we analyse the discourses of the Spanish anti-co-incineration movement and discuss to what extent a framework of environmental justice permeated this struggle.

Discourses in the Spanish anti-co-incineration movement

The Spanish movement against co-incineration articulates both procedural and substantial discourses in the form of claims around citizens' rights and needs. Some of these are more often expressed than others but they are all translated into demands to political institutions. We identified the four main dimensions within discourses of the anti-co-incineration movement, namely: (a) the right to health and to a healthy environment; (b) the right to be recognised; (c) the right to participate and (d) the need to pursue Zero Waste goals.

The right to health and to a healthy environment

Similar to the central concerns of most anti-incineration struggles, the main pillar of the discourse of this struggle is the perceived risk to health and to the environment that this practice poses to the immediate population, and the right to health claimed by residents living in these at-risk communities. Co-incineration is actually presented by these activists as the most dangerous form of incineration because the facilities in which co-incineration takes place were not originally built to perform such a function. As one activist illustrates:

> Cement kilns do not have the most suitable facilities to perform waste incineration. Why not? Because these are facilities that were originally designed to produce clinker. They are not designed in any way to reduce the release of air pollutants. [*M2, 2016*]

The danger of co-incineration is perceived as the combination of the pollution resulting from GHG emissions, mostly CO_2, as a by-product of the cement production process, and, most especially, from the combustion of industrial, hazardous, or municipal solid waste (Gibbs et al. 2001), and the subsequent release of toxic gases, dust and particulate matter (Madlool et al. 2011). Through their discourse, activists decry and emphatically highlight that the people living close to cement kilns burning waste are the worst impacted communities. Moreover, they also speak for the most vulnerable social groups within their communities (i.e., children and older people) and often refer to research and expert opinion that report an increase in cancer rates in those contexts (García-Pérez et al. 2015). As an activist pointed out:

> The cement kiln is extremely close to residents, 1 km away from the city, and for them this means a serious air pollution problem. Cement kilns pollute a lot by themselves, especially with the CO_2 they emit. […] When they burn waste such plastics, fabrics, or sewage sludge, many gases such as dioxins and furans are released, avoiding any filter they [*the factory operators*] could locate. Not even our own organism can filter those particles and they accumulate in our bodies. This has a direct effect over the population living up to 30–40 km away, especially those living closer. And it is known that where there is a cement kiln burning waste diseases increase. All sort of [*health*] problems for everybody, but especially respiratory diseases for children and the elderly. [*M4, 2016*]

As we have witnessed through direct communication with the cement industry and Fundación CEMA in the context of the EJOLT project, however, the cement industry and relevant authorities have reacted dismissively to the activists' claims in most of these struggles. They maintain that co-incineration is not necessarily responsible for the alleged health impacts in the local areas, and affirm that the emissions can be monitored, managed, controlled and contained with precision to meet what the authorities consider 'safe limits' assessed by scientific knowledge (Fundación CEMA 2011). In this way, the clash of narratives about the level of health and environmental impacts of co-incineration is one of the cornerstones of this struggle. As Rootes (2009) points out, despite being extremely difficult to establish a linear cause effect relation between co-incineration and health impacts, awareness of the potential risks and uncertainties has spread among the groups mobilised against co-incineration, echoing the principle that the absence of evidence of harm is not evidence of the absence of harm (Wynne 1992). Moreover, as Rootes (2009) also notes, activists' positions are significantly influenced by the fact that safety thresholds set by health and environmental regulatory bodies change over time (alarmingly always downwards) and also by the historical role of social movements in challenging and improving environmental standards.

The right to be heard

A second dimension of the discourse is related to the effort it takes for activists to be recognised for their knowledge stemming from their experience in this struggle. In this context, the knowledge articulated by activists gets engaged in what we call the *battle about the ontological status of pollution* itself (i.e., the discussions around whether the toxicity of the gases released is actually real). Restlessly, activists try to counterbalance the central environment-friendly claims of the cement industry and its allies (regarding, for instance, the common claim that filters in chimneys and the high temperatures of the kiln are effective enough to destroy the toxic material and ensure that emissions are not that toxic). As an activist explains:

> You are always told that you don't know, that you are not an expert and that you do not have any right to have an opinion because you don't know. [….] Officially I might not know, but after years of being involved in this struggle, I became almost a mini-expert on incinerators because whatever I don't know, I research about it because it distresses me. I inform myself and learn in my free time, despite any difficulty. [*W1, 2016*]

This claim for recognition is not focused on a strong community identity as it may happen in other environmental justice conflicts that rely on a stronger sense of collective identity, but it is centred around the knowledge mobilised within the conflicts. Similarly to what other scholars have identified in many environmental conflicts (Frickel 2004; Irwin 1995), groups opposing co-incineration instrumentalise scientific knowledge to advance their own positions. As Sarewitz (2004) points out, science is necessarily and intrinsically politicised in environmental conflicts as it supplies contesting actors with their own assemblages of relevant, legitimated facts, often grounded in different and competing disciplines. In fact, gaining recognition as a legitimate source of expertise in the struggle is a necessary step for activist groups to increase their capacity to influence the decision-making processes (in both legal and raising-awareness strategies). These anti-co-incineration groups specifically call into question the scientific studies that are financed by the cement industry itself or defend the safety of co-incineration (e.g., Conesa et al. 2008; Schuhmacher et al. 2004), while also increasingly adopt a scientific language and specialised methods to profile themselves as legitimate stakeholders. As we were able to witness, these research activities can range from comprehensive compilation of scientific literature on the topic (a step required for their legal strategy) in collaboration with professional experts, to undertaking pollution mapping action themselves, documenting and collecting evidence through pictures and audiovisuals of key visible impacts such as chimney smoke, odours and the noticeable levels of dust and ash in the neighbourhoods (i.e., in cars, terraces of flats or school playgrounds). These activities have been successful to the extent that the number of groups represented in the Spanish anti-co-incineration movement has increased over time (from 3 in 2009 to 18 in 2016), and their internal coordination as a network, both at national and international levels, has developed along with the explicit support from international NGOs and policy-makers (Zero Waste Europe 2016).

The right to participate

A third dimension of the discourse of the movement against co-incineration is related to their demands of inclusion in more democratic participatory political processes. As Schlosberg (2009) describes, activists in this struggle also call for policy-making procedures that foster community participation or use cross-cultural formats to enhance social learning. As an activist explained regarding the decisions that directly affect the future of her community:

> We complained to the council about its collusion with the cement industry, as well as about the whole process. There was a very tough battle with the council in which we told them that they had acted behind people's backs, that they should have asked, that we were indeed a relevant stakeholder. There was no written agreement but an informal deal: we would be consulted about any issue. And in this case, we were not. [*W1, 2016*]

Moreover, the pursuit of this principle is not only expressed at the local level, but also during international negotiation processes related to both waste and climate change policies. In these fora, the international alliance GAIA has played an important role in ensuring the participation of impacted communities in global policy processes, bringing their testimonies to delegates and policy-makers to speak out about injustices, and exerting stronger influence in policy arenas, following the idea of "Speaking Truth to Power", as originally developed by the Quakers. Most importantly, this strategy is in itself a way to build empowerment and overcome the structural social and cultural obstacles faced by these communities, recognising the intrinsic value of their role as frontline protectors of the environment for the benefit of the global community. As one campaigner stated:

> We participate in global negotiations in the role of civil society, impacted communities and local groups.

> We believe that we must have a place at the table. We must be consulted and must be able to speak up. Moreover, we understand that part of the problem is the lack of consultation, the lack of transparency and lack of participation of civil society in high-level decision-making. [*W3, 2016*]

The need to pursue Zero Waste goals

A last dimension of the discourse is the political alternatives that could replace co-incineration in cement kilns. All of the groups interviewed are part of a common network which informally discusses their political positions and agree that solutions to co-incineration consist of a systemic change of the economy and its dominant culture, particularly in relation to mass production and consumption patterns. This systemic change is for them captured by the concept of Zero Waste. Firstly, they note that anything that cannot be recycled or reused should not be produced; and secondly, they agree there should be a steep decrease of consumption, complemented by the introduction of schemes for better waste management in order to maximise material recovery. As one of the interviewees said:

> Alternatives imply reducing consumption. They imply investing time in raising awareness. People cannot consume in such a wild way: so many packages, so many non-returnable containers. The first thing companies should do is to produce things that can be recycled. Then it would be necessary to implement separate collection, through a door-to-door system or any other that allows a good recovery of the waste so that it can be reused. And above all, organic waste should be used to do good compost, community composting, individual composting [….]. The alternative is Zero Waste. Once we have tried to recover as much as possible, what do we do with the waste stream that cannot be reused or recycled? If there is nothing else to do, after having applied all these previous measures very well, there should be very little residual waste that cannot be used for anything, and for that residual waste stream, we propose not exactly a sanitary landfill but a landfill of inert waste with good control. […] It is infinitely better than burning it. [*M4, 2016*]

This approach directly collides with proposals for co-incineration, which tends to put emphasis on ensuring that the technology employed is safely disposing of waste and contributing to cement production without questioning the disposal of materials in itself. Opponents to co-incineration not only reject waste incineration but also question a much wider framework for production and consumption on the grounds of sustainability. In their view, co-incineration is not desirable even if it could be made under safe technological conditions. They consider the mere availability of vast amounts of discarded materials ready to be burnt as an indicator of the unsustainability of the production and consumption models. They also highlight the need to strengthen resource efficiency and transform the waste management system to minimise as much as possible the production of residual waste (i.e., waste that cannot be reused or recycled). In this way, the campaigns against co-incineration in Spain connect with wider international environmental justice movements, positioning the vision of 'Zero Waste' amongst the solutions to face the threats of climate change and build a sustainable future. This movement's discourse on alternatives shows a systemic understanding of waste production problems (i.e., the problem is not only cement kilns burning waste, but how and why waste is overproduced in rich societies), transcending the realm of the local struggle.

Discussion: the 'right to breathe clean air' as a Spanish expression of environmental justice

Looking at the actual use of the concept of environmental justice in co-incineration struggles in Spain, we found paradoxical results. On the one hand, as shown above, groups do present a comprehensive discourse of environmental justice, incorporating demands for rights on equity, recognition of their knowledge, participatory decision-making institutions, and suggesting necessary policy measures for the sustainable functioning of their communities and ecosystems both at the local and global level. On the other hand, however, activists rarely refer explicitly to the phrase "environmental justice", nor do they often use it in their public campaigns. While activists effectively consider their struggle as fighting environmental injustices, when asked about the environmental justice concept explicitly, they also recognise its limited use in their campaigning strategy. As an activist mentioned:

> The struggle against co-incineration is an environmental justice issue [….] We do not use the term explicitly, but the background is the same. It's the same idea of an unfair distribution of burdens and what the environmental impacts entail. [*M6, 2016*]

This situation resembles in some aspects the case described by Davies (2006) about an anti-incineration campaign in Galway, Ireland. Despite local campaigners there being similarly engaged with international campaigners (GAIA and Zero Waste) who have consistently framed their waste-related struggles from an environmental

justice perspective, there was not a local adoption of such a frame. In the Galway campaign, and similar to the Spanish case, when asked about the choice of terms and similarly to the Spanish case, respondents acknowledged a lack of public connection to the term. There was simply no cultural tradition in those struggles to use the expression of environmental justice as an effective campaigning tool. Unlike the Spanish case in which, as we will explain below, there was an assumption that the meaning of the concept environmental justice was represented through a different phrasing, in the Irish case, however, even if some campaigners were supportive of the term, they perceived an overly negative meaning embedded with the concept of environmental justice that could potentially damage public support. Therefore, this added to their reasons to not use it.

We argue the Spanish struggle against co-incineration can be considered an environmental justice struggle, even if their members strategically choose not to use the specific term 'environmental justice' to put forward their demands. This is because all the groups integrating the anti-co-incineration movement are characterised by some sort of social marginalisation (i.e., geographical and class) which shapes their demands with claims for justice. We think that the form of expression of an environmental justice frame is heavily dependent on the social structure and the cultural and political context in which the struggle takes place. In fact, as some authors have shown (Martinez-Alier et al. 2016; Urkidi and Walter 2011) activists from different contexts and cultures express themselves about the uneven distribution of environmental burdens in different ways. In the case of the Spanish movement against co-incineration, even if the phrase 'environmental justice' is not widely used explicitly, its meaning is captured and articulated in a different manner. Adding to the list of the vocabulary of the global environmental movement (Martinez-Alier et al. 2016), the Spanish popular expression which best represents the environmental justice meaning in the case of the anti-co-incineration struggle is the "right to breathe clean air" or, simply, the "right to health". As one activist explained:

> People understand the concept of justice as a right that has been denied and that's why we claim it [….] similarly to the claims about the right to education, or the right to a health system, we also have a right to breathe clean air. This is the right to health. [*W1, 2016*]

Finally, the analysis of the sociological descriptors of the anti-co-incineration groups in Spain further explains the strategic choice of words of these groups. Particularly, the fact that these groups do not self-identify through a distinctive collective identity related to gender, race, class, age, ethnicity, religion or any other sociological factor—other than being communities impacted by co-incineration—is also significant. This means that in different settings, some groups or cultural minorities may choose to develop a more explicit narrative of their own struggle in terms of justice because they are already embedded in, operate within and benefit from social justice campaigns that are based on such identity frames. In contrast, the groups fighting co-incineration in Spain do not articulate such strong collective identity in those terms, they are not backed up by a historical tradition of local environmental struggles self-defined as 'environmental justice' struggles, and therefore they do not see a concrete benefit in incorporating explicitly the term environmental justice in their struggle.

Conclusions

The concept of environmental justice has been useful weaving together social and environmental struggles, especially in the USA. Although it has spread widely, it is has not replicated elsewhere in the same way, but has adapted to specific contexts, social structures, cultures and struggles. In this paper, we have examined the struggle against incineration in cement kilns in Spain, a particular and increasingly visible target within the anti-incineration struggle. We have characterised the main features that help understand this relatively new struggle which takes place in geographically disadvantaged contexts and we have identified the main dimensions of its discourse. This is a discourse that heavily resonates with the environmental justice frame except for a relatively important aspect: there is no strategic mention of the concept of environmental justice itself. Instead, a similar meaning is articulated through concepts such as the 'right to breath clean air' or the 'right to health'. With this justice frame and other aspects of the environmental justice discourse, such as the need to pursue Zero Waste goals, the movement against co-incineration in Spain articulates both environmental and social demands and aligns with systemic critiques of modern consumer societies.

Our case report supports the idea that environmental justice frameworks are extremely sensitive to contexts where diverse alternative expressions other than 'environmental justice' can exist to capture similar meanings. It also offers a unique insightful description of the Spanish struggle against co-incineration, thus contributing making visible the growing global struggle against co-incineration and its efforts in profoundly questioning how societies manage and think about waste.

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