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TITLE: Portuguese media representations of nuclear facilities in Almaraz, Spain:

Beyond borders and risk perception

RUNNING HEAD: Representations of nuclear facilities beyond the border

ABSTRACT

The attitudes and beliefs behind people's responses to nuclear facilities has been since the 1970's one of the main concerns of environmental psychology and related disciplines. However, analyses have mainly focused on 1) understanding how risk perception, and the lack of procedural and distributive justice in the relationship between local communities and authorities and developers, impacts those attitudes and beliefs and 2) on the perceptions of publics living within the same borders as the facilities. Less attention has been given to how the deployment of nuclear facilities affects communities beyond the border, and, relatedly, can be impacted upon by other intergroup relations and processes, such as more symbolic dimensions of justice. This paper aims to offer a preliminary exploration of how those intergroup processes might play a role in people's attitudes and beliefs regarding nuclear energy, based on an analysis of the Portuguese media representations of nuclear facilities in Almaraz, Spain. The implications of these analyses for both energy policy and environmental psychology will be discussed.

KEYWORDS: social acceptance of energy infrastructures; nuclear energy; media representations; intergroup relations; environmental justice

1. Introduction

In recent years, measures to adapt to, mitigate and communicate climate change have been increasingly promoted at international, European and national levels (e.g., Renewables Directive 2009). In this context, renewable energy generation technologies have been extensively deployed. However, whereas most people agree with generating energy from renewable sources, when specific infrastructures are deployed in particular locations, they are often opposed, mainly due to their impact on landscapes, place attachments and lack of procedural and distributive justice in their deployment (see Devine-Wright, 2013; Zoellner et al., 2008; for reviews). In so being, and also due to the costs associated with the intermittency of renewables (Devine-Wright & Devine-Wright, 2006), other energy alternatives have also been promoted, both coming from the past – such as with the nuclear renaissance in the UK (Johnstone, 2014; Cotton, 2015) – or from the future – as with fracking (Thomas et al., 2017). However, these alternatives are not only more carbon intensive but also tend to be even more controversial, as they involve more environmental and health risks (Johnstone, 2014; Cotton, 2015). This has been very clear with nuclear, the target of moratoriums in several countries – especially after Fukushima (Cotton, 2015; Poortinga, Aoyagi, & Pidgeon, 2013) – and of protests against it ever since the 1960's (Barca & Delicado, 2016).

Social science's literature has therefore been attempting to better understand people's attitudes and beliefs regarding nuclear power plants and nuclear waste facilities, now seen as "the Achilles Heel of the nuclear industry" (Bickerstaff & Johnstone, 2017, p.139; also Barke & Jendkins-Smith, 1993; Slovic, Layman, & Flynn, 1991). This research can be described by two main trends. First, the examination of risk

perception as the main predictor of beliefs and attitudes about nuclear facilities (Whitfield et al., 2009; Sjöberg, 2000). Second, the focus on the attitudes and beliefs of communities affected by national nuclear facilities, that is those that live in the same country where nuclear facilities are constructed. However, communities that live in other geographically proximate countries will or may be equally affected by the construction of those nuclear facilities – namely at a socio-psychological level. Little is still known however about how socio-psychological factors – such as risk perception, perception of procedural and distributive justice – impact on the attitudes and beliefs of the publics over the border regarding nuclear, nor about the role of other intergroup/country-relations and processes – such as national identities and associated collective memories - on perceptions of energy infrastructures in general (but see Batel & Devine-Wright, 2017; Caillaud & Flick, 2013). This paper aims to overcome this by examining the representations of the Portuguese media regarding nuclear facilities in Almaraz, Spain. We aim specifically to offer an exploratory examination of the main attitudes, beliefs and practices associated with those representations and their relation with the abovementioned socio-psychological factors.

1.1. The role of inter-group relations and environmental justice in people's attitudes and beliefs about energy infrastructures

Locally unwanted land uses (LULU's) are normally considered to be services and infrastructures that are seen as in the national interest but with costs for the local communities nearby where they are constructed. Examples of LULU's are prisons, incinerators, highways, high voltage power lines and nuclear power stations (Rootes, 2009; Mannarini et al., 2009; Lima, 2006). However, something seems to distinguish between those infrastructures: risk. Risks tend to be perceived as higher when they are

seen as involuntary, uncontrollable, potentially catastrophic and created by technology (Lima, 2006), and so nuclear power stations and incinerators tend to be seen as involving a higher degree of risk than highways, wind farms or high voltage power lines (Gregory, Slovic & Flynn, 1996). In turn the framing of something as more or less risky along those parameters is deeply shaped by socio-cultural contexts (Bickerstaff, 2004; Douglas & Wildavsky, 1982). However, this literature has tended to focus too literally on LULU's – locally unwanted land uses. In other words, it has often focused only on the local or at the most national communities facing the construction of a certain infrastructure in the relation between communities and central or local governments (e.g., Bickerstaff & Johnstone, 2017; Devine-Wright, 2013; Mannarini et al., 2009), whilst neglecting the analysis of the other intergroup relations at stake in these types of decision-making processes. These are as much between communities within the same country as between those and communities across the border, especially in the case of nuclear facilities. In fact, most of this body of research has defined and operationalised distributive justice in an instrumental way, as local material costs with national material benefits, and as something to be solved in the relation between authorities and developers, and local communities. Nevertheless, Batel and Devine-Wright (2017) have shown how one of the aspects more associated with local communities' opposition in Wales to the construction of a high voltage power line was the fact that it would transmit electricity from Wales to England, after a past history of England exploring, "raiding and milking Wales" (p.11; see also Devine-Wright & Devine-Wright, 2009). Also Malone and colleagues (2017) illustrate that for technological innovations to be successful those have to be well interlinked with the way in which countries see themselves and the historical and national narratives and identities they build. The authors show how the existence of different national narratives in the USA, Sweden and

Brazil allowed for the success of nuclear, biomass and sugar cane ethanol, respectively, in those countries and in certain periods during the last century. This also echoes other recent research that has demonstrated how specific intergroup processes such as infra-humanization, essentialization and ingroup bias (see Roccato, Mannarini & Pacilli, 2017; Batel et al., 2015; Bernardo & Oliveira, 2016; respectively) play an important role in the way that we relate with the places where we live and with the changes happening in those places, such as those caused by LULU's. In other words, intergroup relations, identities and associated symbolic processes, seem to also be important in shaping responses to the deployment of energy infrastructures.

It might be useful then for the literature investigating people's responses to energy infrastructures to go beyond risk perception and adopt a more extended notion of environmental justice that recognises both the instrumental and symbolic dimensions of justice. As Walker (2009) suggests, a fuller notion of environmental justice is one that considers procedural justice, distributive justice and also recognition, that is, issues of place stigmatisation and the (mis)recognition of people's identities and cultural values and practices (see also Jenkins et al., 2016). The present study aims to shed light on this discussion, by analysing the Portuguese media representations – one of the main mirrors of societies' attitudes and beliefs and also one of the main actors responsible for shaping those (Kasperson et al., 1988) – concerning nuclear facilities in Almaraz, Spain.

2. Method

2.1. Context

The nuclear power station of Almaraz was constructed in the municipality of Almaraz, Spain, in the 1980s. It is located at around 100km from the border with Portugal and is refrigerated by the Tagus river, which means that if an accident happens,

the Portuguese population will be directly affected, eventually all the way down to the capital, Lisbon. Its functioning was recently extended to 2020 by authorization of the Spanish government, generating a heated controversy amongst environmentalists since the station was scheduled for closure in 2010 (Ferreira, 2017). Besides the extension, the protests against it are also directed at the planned construction of a nuclear waste facility in the same location, mainly as a sign of the plans for extending the lifetime of the nuclear plant beyond 2020.

2.2. Materials and procedure

For examining the Portuguese media representations, we have analysed three newspapers, two of reference (*Público* and *Diário de Notícias*) and one tabloid (*Correio da Manhã*). The term “Nuclear Almaraz” was used to search for the news in the online search engines of each newspaper in the period 2016- 2017. This resulted in a final sample of 229 articles. Of these, a more in-depth analysis revealed that only 193 were directly related with the nuclear power station or waste facility of Almaraz. The articles were then organised chronologically and of those 50% were selected to compose the final sample to be analysed (see Boykoff & Boykoff, 2004). This resulted in 97 articles, which were submitted to a Discourse Thematic Analysis (Clarke & Braun, 2013) performed in two steps, both using NVivo. In a first step, we identified the main themes and sub-themes organising the discourses. A sub-sample of the articles (10%) was cross-analysed by the two authors and three other coders for fine-tuning themes and sub-themes. The second step consisted of analysing in a more fine-grained way the discourses used to convey such themes and associated socio-psychological processes.

3. Analyses

As described, the analysis was performed in two steps. First, we identified the main themes and subthemes present in the media discourses about Almaraz. These are presented in Table 1 below.

--- Table 1 ---

The main themes and subthemes identified in the discourses of the media to talk about Almaraz are built around most of the main socio-psychological factors that have been identified as shaping people's representations of nuclear and other energy infrastructures, namely the representations of people living nearby those infrastructures (Lima, 2006; Devine-Wright, 2013). Risk perception, negative and positive impacts, procedural justice and trust were all part of the media discourses discussing Almaraz. Nevertheless, Table 1 also suggests that there are some differences and some results worth discussing in more depth. On the Portuguese side of the border only negative attitudes and, namely, opposition, were identified in the representations of the media, whilst the only reference to positive impacts made by the Portuguese media was in the context of an interview with people living in and in the proximity of Almaraz, in Spain (DN, 09/01/2017). Perceived negative impacts/risk perception – both health and environment related – are presented by the Portuguese media as the main drivers for opposition to the nuclear facilities. For making sense of those risks/impacts, images of both past nuclear disasters (*“even because examples exist like Chernobyl, Fukushima and others”*, CM, 28/02/2017) and other imaginaries are mixed up with local cultural and geographical references. This is evident in the objectification of the environmental (and health) risks brought by the nuclear facilities of Almaraz as creating mutant

dolphins (*“In five years we will be able to have the first mutant dolphins (...)”* – Correio da Manhã, 14/01/2017) and also in the anchoring of the new nuclear waste facility to be built as *“a cemetery of nuclear waste”* (Público, 23/09/2016). Also interesting is that risk perception seems to make national identities less important – *“because radiations have no borders”* (CM, 04/02/2017) – and be used by the Portuguese media to highlight an Iberian identity and history instead (*“the issue around the nuclear power plant is not an issue of Spanish sovereignty, but of Iberian sovereignty”*, CM, 04/02/2017; *“Almaraz: Nuclear so close, dividing the two Iberian neighbours”*, DN, 09/01/2017), instrumental in emphasizing that this is an issue that should not only be worrying for the Portuguese, but also for the Spanish, as one with the Portuguese. This is further highlighted in media articles that present the nuclear power plant as simultaneously *“located in the Tagus river and in Spanish territory”*; the protests against the nuclear plant as *“Iberian (with protests from both sides of the border)”* (CM, 09/06/2016); and media articles that highlight how even the application of legislation in this controversy was attemptedly shaped by the intergroup relations and related collective memories between the two countries: *“the typical principle of international law and, in particular, between countries as close and as friendly as Portugal and Spain, is that when there is a contention, we identify it and the conditions to solve it”* (DN, 04/01/2017). At the same time, the media also highlight how the lack of procedural and distributive justice in the process are important factors associated with Portugal’s opposition to the nuclear plant. In other words, the same lack of procedural and distributive justice that is often pointed out by citizens regarding decision-making processes led by central and local authorities (Bickerstaff & Johnstone, 2017; Lima, 2006) also shows up here as one of the main factors leading to the opposition of the Portuguese government and citizens to the Almaraz nuclear facilities. However, perhaps even more interesting is that besides

perceptions of lack of procedural justice and of lack of instrumental distributive justice, there is a more symbolic, identity dimension that also shapes the Portuguese representations about the plant and which relates with a lack of recognition (Walker, 2009): “*the Spanish always look at us as if we are fools*” (CM, 24/02/2017).

Finally, and as suggested by one of the articles focusing on the responses of the inhabitants of Almaraz (DN, 07/11/2016), analyses also suggest that most people do not have either negative or positive attitudes regarding the nuclear plant – they are just indifferent or learned to tolerate the nuclear plant. In fact, most of the practices (i.e., active discursive or behavioural opposition against the facilities) identified in the discourses of the media were enacted either by organised environmentalists or representatives of political parties. This is further corroborated by the representations of the Portuguese media, which highlight how until this controversy nothing had been done by Portugal with a view to protect the country from a possible nuclear accident at Almaraz and, in so being, this controversy seems to have worked “*as a kind of alarm clock for Portugal (...). It is incredible how people do not have any notion of the risk involved, when in any other country the proximity to such a thing would immediately bother the neighbour*” (DN, 21/05/2016). In fact, most of the voices represented by the Portuguese media were those of environmentalists from organised social movements (e.g., Quercus; Zero) and not those of Portuguese citizens or of those living near the border with Almaraz. In other words, this seems to suggest that either due to lack of information or due to the normalization of the risk involved in the nuclear plant of Almaraz (Lima, Barnett & Vala, 2005; also Wolsink, 2007), right up until the decision to extend the life of the nuclear plant, the Almaraz nuclear plant was (indifferently) part of the everyday life of Portuguese citizens.

4. Conclusions and Discussion

This study performed a preliminary exploration of the attitudes and beliefs of those living across the border regarding the nuclear facilities of Almaraz and, namely, the role played by more symbolic dimensions of intergroup relations in the shaping of those attitudes and beliefs. This was based on the examination of the Portuguese media representations of the nuclear facilities in Almaraz, Spain, near the border with Portugal. The analyses suggest, as expected, that risk perception/expected negative impacts are the main drivers of opposition to the nuclear facilities, albeit with a predominantly national focus. Positive and visual impacts were barely mentioned by the media, as well as impacts on local place attachments. Conversely, impacts on national identities and related processes – such as intergroup relations and associated collective memories between the Portuguese and the Spanish – were part of the discourses of the Portuguese media over this controversy, suggesting, in line with recent research (e.g., Devine-Wright & Devine-Wright, 2009; Batel & Devine-Wright, 2017) that intergroup relations and related processes play an important role in the social acceptance of energy infrastructures, within and beyond national borders. It was especially interesting to see that a more symbolic dimension of those intergroup relations – or recognition (Walker, 2009) – seemed to also be important in shaping representations over the controversy, beyond issues of procedural justice and distribution of material costs and benefits.

This study has, however, several limitations. Firstly, it is only exploratory, and preliminary – a more in-depth analysis of the Portuguese media articles on this and, crucially, collection of data from both local communities near the border with Almaraz and with Portuguese citizens in general would have been important to further examine some of the issues discussed here. Additionally, it would be relevant to perform a comparative analysis, by examining the Spanish media representations of this

controversy, again together with collecting data from the people living in Almaraz and nearby.

Nevertheless, these analyses also suggest important avenues for future research and debate. First, it might be relevant to analyse and discuss environmental justice always through this tripartite lens, looking simultaneously at how procedural justice, distributive justice and recognition shape public and other actors' responses to LULU's. Another interesting result showed how indifference or tolerance seemed to be the main response of 'regular' citizens to the nuclear facilities in Almaraz. This highlights the importance, as others have suggested before (e.g., Batel, Devine-Wright & Tangeland, 2013), of further exploring other responses to energy infrastructures beyond opposition, namely indifference as this is arguably the most frequent response to energy infrastructures. What consequences might this public indifference have in long term? Is it sustainable that people do not engage with the deployment of energy infrastructures? Relatedly, another interesting result was that the Portuguese media did not report any differences between the positions of Portuguese political parties. In other words, all parties presented themselves as opposing the maintenance of the nuclear plant in Almaraz, albeit with disagreements in terms of how to achieve that. This may reflect the history of nuclear in Portugal and that due to enforcement of the moratorium since the 1980s nuclear may have become a controversial subject to defend. But the apparent consensus over nuclear and the lack of conflict and discussion over it in the Portuguese public sphere might also help to explain the indifference of most of the Portuguese citizens over the years to the Almaraz nuclear plant (see Barry & Ellis, 2011).

In sum, and as Malone and colleagues (2017) highlight, "successful technological transformation must be woven into how the country sees itself" (p.70). The present analyses suggest that the nuclear plant of Almaraz is not integrated in the way Portugal

sees itself, its past and its future – as an historically anti-nuclear country and eventually a future green, renewable one [add ref PUS?].

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