

Climate Change

Brexit as critical juncture: factors for UK's environmental policy amendment?

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The United Kingdom (UK)'s political divorce of the European Union (EU),or 'Brexit' will have some implications for many policy areas because of the complex institutional web of the EU not least the fact that the EU's environmental policy is integrated into the UK's policy. Thus, disentangling and reconfiguring the UK's environmental policy seems necessary to circumvent environmental regulatory gaps. Scholars argue Brexit will provide the UK with the opportunity to amend its environmental policy not only to fill loopholes but also ensure that environmental protection is guaranteed. This paper highlights the factors that could influencethe UK's environmental policy amendment because of Brexit. Gaps in the European Union Withdrawal Bill, trade deals, economic outlook and other circumstances are pivotal.

BACKGROUND

From early 2016, the sound of drums for and against Brexit was thunderous attracting attention from all over the world. At the University of Nigeria in the northern fringes of Enugu State, South Eastern Nigeria about 6,786.4 kilometres away from London, the United Kingdoms' capital, I could hear the sounds of the drums thanks to the Internet and Smartphone. In June 2016, the UK voted to leave the European Union (EU) in a referendum. Brexit became a reference point for pro-Biafra independence movements, e.g., the Indigenous People of Biafra (IPOB) to demand a referendum to determine the fate of Biafra independence from Nigeria. IPOB's constant reference to Brexit amplified Nigerians especially people in the South Eastern region of the right of people to decide what their government should do (Nwankwo, 2017). Indeed, it spurred my interest in Brexit. In April 2017, I received great news of coming to the United Kingdom (UK) to study Master of Arts in Politics and International Relations (Environmental Politics and Climate Change) via a Commonwealth Shared Scholarship at Keele University. From that moment one of the issues that first came to my mind was Brexit. I wanted to know what Brexit is all about particularly from an environmental politics and international development cooperation perspective.

In an attempt to know more about Brexit, I decided to choose topics related to these two themes in the modules that require mini-research projects. In one of the projects, I focused on the implications of Brexit on the UK's environmental policy. I conducted semi-structured interviews with three Senior Academics and two Professors whose teachings and research cut across various dimensions of EU-UK environmental politics from 13 to 21 November 2017. Personal information of the interviewees is not mentioned in any way for ethical reasons. I compared the interviews constantly with previous discussions to confirm or dispute the emerging ideas in the context of the research

and to ensure their reliability (Ezeibe et al., 2017). I augment these interviews with some relevant published scholarly research and analyses by top academics. The emerging ideas are what I aim to bring forth in this paper.

As germane as environmental issues have become presently (Nwankwo, 2014) for people, governments and non-government actors across the globe (Obeta & Nwankwo, 2015), it was not given significant consideration during the campaigns for Brexit (Pollitt, 2017). As soon as the referendum was in favour of leaving the EU, the implication of Brexit on the environment of the UK began to receive the considerable attention of scholars (see, e.g., Scott, 2016; Gawith & Hodge, 2017; Martin, 2017; Ziv et al., 2018). For instance, Pollitt (2017) and Martin (2017) consider the implication of Brexit on the energy sector and how it will impact the environment, while Brown (2016) looks at its implications for nuclear waste disposal. Ziv et al. (2018) investigate Brexit ramification on the nexus of water, energyand food in the UK.

Others studies consider Brexit implications for climate change obligations and policy (Scott, 2016; Hepburn & Teytelboym, 2017). Gawith and Hodge (2017) examine rural land policy while the challenges and opportunities Brexit poses for UK environmental law was considered by Scotford and Bowman (2016). Generally, these studies argue that Brexit heralds some undesirable implications for several areas of the UK environmental protection. Consequently, there are fears that Brexit portends danger to environmental protection in areas such as emissions reduction (although it is argued that the Climate Change Act [2008] will take care of this), agricultural and rural policy, water and food quality and nuclear waste disposal.

However, it is argued that the UK Government will have the greater flexibility to amend its environmental policy to safeguard the environmental (Scotford & Bowman, 2016). It is also argued that the European Union Withdrawal Bill(EUWB) will convert EU laws into UK laws so much of UK environmental policy will not change post-Brexit. Nevertheless, the mechanisms for enforcement and accountability which was provided by EU could be lacking or not as effective as the

EU(Scotford & Bowman, 2016; Hepburn & Teytelboym, 2017). Negotiations between the EU and UK are still ongoing,but the ramifications of Brexit on policy are not particularly clear regarding the possibility for amendments to safeguard the environment.

Recently some scholars have articulated likely implications of Brexit on the environment drawing on potential trade scenarios the UK could find itself on exit day in 2019(see, Burns, Gravey & Jordan, 2018). Their findings align considerably with the perspectives from the interviews I conducted, but I focused more specifically on the possibilities for UK environmental policy amendment in relation to Brexit. Since the focus of the paper concerns policy amendment, the paper is framed around the path dependence model of policy analysis. The paper argues that Brexit is a critical juncture to amend UK's environmental policy, but the amendment is a function of some exogenous factors such as economic outlook, trade agreements and gaps in the EUWB. I will now discuss the path dependence model before presenting the interviews.

PATH DEPENDENCE MODEL

Scholars indicate that the UK is at a critical juncture where many policy changes are essential because of Brexit (e.g., Reid, 2016; Martin, 2017; Pollitt, 2017; Nwankwo, 2018). One of the models for analysing policy change is the path dependence model (PDM). Nwankwo (2018) argues that the PDM is a useful approach to frame policy change resulting from Brexit given that Brexit is a critical juncture. According to Peters, Pierre and King (2005) contemporary research on public policy has been partitioned into two categories. The first category stresses the persistence of policy and its path dependency while the second category emphasises policy change (Peters et al., 2005). However, most policy areas show the features of both permanency and change thus these two groups of literature are crucial for understanding policy (Fioretos et al., 2016).

The central strand of political thought, e.g., in systems analysis, rational choice theories, has emphasised balance, permanency in public policy (Shepsle, 2006; Hall, 2010). Historical institutionalism stresses stability (Pierson, 2015). Theoretically, the fundamental analytic idea of path dependence in historical institutionalism is that some underlying forces opposechanges in policy (Suddaby, Foster & Mills, 2014). Therefore, the path dependence model stipulates that self-reinforcing forcesoppose a change in the policymaking processes (Fioretos et al., 2016). Scholars contend that the stability of policies results from the adhesive character of institutions and actors within them which opposealtering the prevailingnorms, practices, rules, over an extended period once a specific policy configuration has been formed (Peters et al., 2005; Pierson, 2015). The high costs of policy reversal influence the opposition to change as public policies, and formal institutions are often made to guarantee continuity (Nwankwo, 2018).

Nevertheless, thelengthy period of path dependency could be interrupted by a stormy 'critical juncture'or 'policy window' where policy reform or change is most expected (Sorensen, 2015). Policy windows are significant opportunities for policy change because of political shock or uncertainty in the political or policy systems (Capoccia, 2015). The path dependence model has been employed to study various UK policy areas, e.g., the development of university high-tech spinout companies (Vohora, Wright & Lockett, 2004) and health care reforms (Pollitt et al., 2010).

In the context of this research, Brexit is framed as a policy window or critical juncture that will spur the amendment of the UK environmental policy after an extended period of membership of the EU. Nevertheless, it has been argued that path dependence model cannot predict policy change without considering the exogenous factors on the broader social-economic and political environment that drive the change (Peters et al., 2005). Consequently, attention was given to any exogenous factor that may influence the amendment of the UK environment policy because of Brexit.

BREXIT AS CRITICAL JUNCTURE FOR THE UK'S ENVIRONMENTAL POLICY

There is a consensus on the opinion of the interviewees and literature evidence (e.g., Scotford & Bowman, 2016) that Brexit provides a window to amend UK's environmental policy. Thus, Brexit has enthroned a moment that path dependence theorists call critical juncture when policy reform or change is most likely after a lengthy period of stability. However, the central themes that cut across the experts' opinions are *trade deals and economic outlook*. They argue that the trade deals with the EU and UK agree on or with third parties and the economic outlook are critical factors that will influence what amendment will be made to the UK environmental policy. On trade deals, the words of one of the academics capture this argument elaborately.

The amendment of UK environmental legislation due to Brexit will depend on the trade deal UK gets from the EU. A trade deal that provides that the UK must maintain European environmental standards to remain in the single market would mean that such amendment would not be required because about 75% of UK environmental law is a derivative of EU laws. If the UK fails to get a favourable trade deal from the EU, then there is a greater extent of lowering environmental standards. Inthat case, there would be a need to amend the environmental policy to strengthen environmental standards in the UK.

The argument that trade deal between EU and UK will to some extent determine if the UK will amend its environmental policy is valid. Thus, it is clear that the environmental dimensions of the trade deal between the UK and any partner will determine if the UK's environmental policy is to be amended. However, the UK Government has not highlighted this implication of trade deal on environmental policy; perhaps it hopes to get a trade deal that has no stringent green line attached to it (DEFRA, 2017). Whether the UK Government will be able to get a UK-EU trade deal that is free from upholding high environmental standards remain to be seen, but as the experts argued, it will be difficult to reach.

A review of one of the experts' analyses indicates that the UK could have about three likely trade deals viz Canadian (CETA), Turkish and Norwegian models (see, Burns et al., 2018) for details of these models. In their report, Burns et al. (2018) argue that in the Norwegian model, the UK would either remain (or apply for re-entry) as a member of the European Economic Area (EEA) and is subject to the EEA Agreement. Thus, most of EU environmental law would still apply, except in the areas of the Common Agricultural and Fisheries Policies, the Habitats Directives and the Bathing Water Directive Birds.

In this case, the UK and its devolved nations will maintain the current EU standards but can aim for higher standards provided the operational mechanism of the EU's internal market is not jeopardised as guaranteed by article [Art. 193 TFEU]. Consequently, the internal

According to Burns et al. (2018), the Turkish model would allow the UK to join the EUCU without partaking in the EU's internal market or being in the EEA and not have external trade agreements. The Customs Union option would significantly benefit the UK and its devolved nation of Northern Ireland (NI) regarding keeping the border between Ireland and NIopen and reduce the interruption of supply chains for products traded between the UK and EU. The issue of the Irish border has developed into a critical challenge for the UK government in the Brexit negotiations because leaving the Customs Union and EU internal market could necessitate border posts and checks to be restored between Ireland and NI. Nevertheless, some checks on work permits, livestock and food would be required if the UK stays in the EUCU or negotiates a similar agreement.

The Canada model will take the semblance of the EU and Canada Comprehensive Economic and Trade Agreement (CETA) which entered into force in 2017. This option will give UK and EU special access to each other's market without UK being in the EUCU, and internal market and hence the UK is free to pursue external trade deals. However, the UK might be unwilling to accept CETA provisions on services which take the semblance of the World Trade Organisation (WTO) principles. The service sector of the UK accounts for about 80% of its economy is which makes CETA, not an ideal option. In December 2017, UK Brexit Secretary David Davis proposed a 'CETA +++ agreement' which the 3+s are probably connected with some deals on services, investor-state dispute settlements (ISDS) and Irish border although there are no details of them yet.

However, the ISDS is contentious because there was widespread lobbying against it throughout the negotiation of the TAIP (transatlantic trade investment partnership). It is argued that ISDS can be used to weaken domestic standards. Although it is yet to beverified, the CJEU recently ruled that ISDS may not be in tandem with EU law. The environmental framework of CETA, the Joint Interpretative Instrument provides that the obligation to advance protection levels should not weaken current standards on environmental protection. Should this model see the light, the EU would have to negotiate for a 'green' line regarding regulatory divergence—limiting off-shore pollution haven which could destabilise EU standards. Furthermore, the Irish border issue makes regulatory discrepancy between the UK and EU unsatisfactory.

Adopting the Turkish and Canada Models would imply that the environmental provisions of trade agreements conducted by the EU could still apply to the UK. Thus, regarding product standards, it is likely that UK environmental policy would not change in the short term. However, for environmental policy outside the precincts of product standards or trade, e.g., habitats protection could change in the longrun if there is no clearly stated green line in any pact. Nevertheless, the UK government has overtly jettisoned remaining in the EUCU because it will inhibit the UK from entering into eternal trade agreements and

makes UK subject to the authority of the Court of Justice of the European Union (CJEU) (or some equivalent). Thus, the Canada model is likely to have the edge over the Turkish model for the UK.

Furthermore, there are two possible scenarios in case of a fall out between the EU and UK. According to Burns et al. (2018), these two scenarios are a 'planned no deal' and 'chaotic no deal'. In these two scenarios, the UK would not be in EUCU and internal market and would be free to into entering into trade deals with third parties. In the planned no deal or a hard Brexit scenario, Burns et al. (2018) assume it is foreknown that UK would not get any trade pact with the EU, but the government is ready for it. The chaotic no deal scenario or 'cliff-edge' Brexit is a situation where there is no contingency plan if no deal is reached between the EU and UK before exit date or the agreementis jettisoned by one or more of the UK Parliament, the European Parliament, or the European Council.

Regarding hard Brexit scenario, indeed as Burns et al. (2018) assumes, relevant UK government departments are making exigency plans for a no deal Brexit. For this scenario, Burns et al. (2018) assume that the EUWB passes through Parliament without hitches and through the Joint Ministerial Council (JMC), an accord is reached between the UK and the devolved nations on the future coordination of environmental issues associated with the trade. With a cliff-edge Brexit, it implies that the UK may not have the time to take exigency steps to fill regulatory gaps if, e.g., the parliament jettisons the EUWB. It also means that the EUWB secured parliamentary support, but there is no time to develop alternative governance systems, e.g., waste trading, or chemicals regulation and authorisation, or time to safeguards the UK's accession to global environmental treaties to which it is presently assented to as an EU member.

In both hard and cliff-edge Brexit, the UK would be free to change domestic environment policy in line with the international agreements it is party to and the position of the devolved governments. Under the hard Brexit scenario, parliamentarians and environmental NGOs have raised concerns that the UK producers would come under competitive deregulatory strains which implies that even if the UK set at a higher standard for products on the domestic front, there would be a de facto weakening of products standards. Under the 'cliff-edge' Brexit scenario the weakening of products standards would amplify. The pressure to secure trade deals with third parties plus potential regulatory gaps in the EUWB are possibilities for environmental policy change (Burns et al., 2018).

Considering potential UK environmental policy amendment as a function of the gaps in the EEUWB lends credence to the UK House of Lords' European Union Committee (HLEUC) report which indicates that some loopholes in the EUWB will spur the amendment of UK's environmental policy (UKHL, 2017, p.3). The report indicates that Brexit provides an opportunity to amend or repeal existing UK environmental 'legislative measures', but it does not consider trade deals as a factor for the amendment (UKHL, 2017). Instead, the amendment is a function of any gaps in the EUWB which could cause policy instability during the Brexit process and in the long run. The issue of policy instability raise in the UK HLEUC report bolsters the argument of Reid (2016, p. 407) that in the structural sense one of the principal policy changes is 'likely to be the loss of the stability provided by the slow processes of making and changing EU law'.

The UK Government's response to the HLEUC report agreed that policy stability is needed but considers amendment as a function of the UK's circumstances post-Brexit (DEFRA, 2017). Thus, it reflects the experts' opinions and literature evidence that policy amendment is

Regarding economic outlook, the interviewees argue that economic outlook could influence an amendment of the UK environmental policy. As one of the experts reasoned,

If Brexit leads to an economic recession in the UK, there will be pressure from businesses for Government to relax stringency of environmental policy. Relaxing the stringency of environmental policy is imperative because the UK must be economically competitive after Brexit which means that some policy change will be neededas businesses needed to make profits to be sustainable. If the businesses environment is not conducive to profit maximisation, they either fold up or relocate to other countries. Given that the economy is intricately related to the business environment, economic recession would mean specific environmental policy reforms would be needed.

Available literature has not considered the likely ramifications of UK's post-Brexit economic outlook on the environmental perspectives. Thus, this finding differs potentially from the ongoing narratives that focus on the implications of trade agreements and the potential gaps in EUWB. However, some studies have associated economic outlook to businesses' environmental behaviour. Such studies anchor to the ecological modernisation theory to argue that ideas are evolving in business, public and political domains that conceive ecological interests as progressively linked with economic interests (e.g., Revell & Rutherfoord, 2003; Gunningham, Kagan & Thornton, 2004).

The findings from a study by Los, McCann, Springford and Thissen (2017) suggest that the Brexit will likely impact the UK economy. However, the impacts will vary by sectors, between sectors and across the regions of the country. Furthermore, the consequences are subject to the trade deals UK reach with the EU with a no deal scenario likely to have the hardest impact. Therefore, different sectors, cities and regions will experience differing levels of sensitivity and susceptibility to any changes in UK-EU trade relations which may arise from Brexit and the robustness and vulnerability of their long-term competitive positions will vary (Los et al., 2017).

Los et al. (2017) argue their findings on the ramification of Brexit on the UK economy is in tandem with the recently disclosed government analysis which indicates that in the event of a no-deal Brexit, the northeast of England will be one of the worst affected areas while London will be one of the regions least hit. According to Los et al. (2017), a no-deal Brexit scenario will likely result in, for example, more than 2.5 million jobs at danger, about £140 billion of UK economic activity yearly is directly at threat. Also, several vital primary and manufacturing

industries are at risk, including many service industries. For further details see (Los et al., 2017). From an environmental perspective, the implication of this is that the UK environmental policy will potentially need amendment given that Brexit will impact the UK's economy, but the amendment could vary depending on the nature of trade deals.

In conclusion, given the flexibility Brexit offers, it could be argued that Brexit provides the opportunity to amend UK environmental policy not only to fill loopholes but also ensure that environmental protection is guaranteed. The factors that will likely influence amendment to UK environmental policy are trade agreements, gaps in the EUWB, economic outlookandother circumstances. However, since according to Los et al. (2017) the impact of Brexit on the economy is a function of trade deals, it follows that while trade deals and regulatory gaps in EUWB will be important variables to analyse the potential UK environmental policy amendment resulting from Brexit, trade deals could be a mediating variable for economic outlook.

However, it is not clear to me if UK's economy is solely dependent on its trade with the EU or other partners. If that is the case, then we could analyse the potential implications of Brexit on environmental policy amendment as argued in this paper. Otherwise, there could be a need for further investigations of other determinants of UK's economic outlook and how they could shape Brexit ramifications on a potential amendment to environmental policy. Investigating this issue is beyond what this paper can achieve. Nevertheless, this paper could be an eye-opener to the issue of the economic outlook and the environmental nexus of Brexit.

REFERENCES

- Brown Jr, G.E., 2016. Nuclear waste disposal, climate change, and Brexit: the importance of an educated public. Elements, v. 12, i. 4, pp. 227-228.
- Burns, C., Gravey, V., and Jordan, A., 2018. UK Environmental Policy Post-Brexit: A Risk Analysis, a report for Friends of the Earth, Brexit and Environment, March 2018. [online]. Available at: http://ukandeu.ac.uk/wp-content/uploads/2018/04/Environment-and-Brexit-C-Burns-Et-al-March-2018.pdf [Accessed 02 July 2018].
- Capoccia, G., 2015. Critical junctures and institutional change. Advances in Comparative-Historical Analysis, pp.147-179.
- 4. Department for Environment Food and Rural Affairs DEFRA, 2017. Government response to the House of Lords EU Energy and Environment Sub-Committee report into Brexit, Environment and Climate Change Policy [online]. Available at: http://www.parliament.uk/documents/lords-committees/eu-energy-environment-subcommittee/Brexit-environment-climate-change/Gov-response-Brexit-env-climate.pdf> [Accessed 21 October 2017].
- Ezeibe, C.C., Nzeadibe, T.C., Ali, A.N., Udeogu, C.U., Nwankwo, C.F. and Ogbodo, C., 2017. Work on wheels: collective organising of motorcycle taxis in Nigerian cities. *International Development Planning Review*, 39(3), pp.249-273.
- 6. Fioretos, O., Falleti, T.G. and Sheingate, A. eds., 2016. *The Oxford handbook of historical institutionalism*. Oxford University Press.
- Gawith, D. and Hodge, I., 2017. Policy Brief on an alternative approach to rural land policy after Brexit.
- Greener, I., 2002. Understanding NHS Reform: The Policy-Transfer, Social Learning, and Path-Dependency Perspectives. *Governance*, 15(2), pp.161-183.
- Gunningham, N., Kagan, R.A. and Thornton, D., 2004. Social license and environmental protection: why businesses go beyond compliance. Law & Social Inquiry, 29(2), pp.307-341.
- Hall, P. A., 2010. Historical institutionalism in rationalist and sociological perspective. In J. Mahoney, & K. Thelen eds., Explaining institutional change. Ambiguity,

- Los, B., McCann, P., Springford, J., and Thissen, M., 2017, "The Mismatch between Local Voting and the Local Economic Consequences of Brexit", Regional Studies, 51(5), pp. 786-799.
- 12. Martin, R., 2017. Brexit as Climate Policy: The Agenda on Energy and the Environment (No. 043). Centre for Economic Performance, LSE.
- Nwankwo, C.F., 2014. Residential water demand and supply in Awgu local government area, Enugu State, Nigeria. Unpublished BSc. Project: Department of Geography, University of Nigeria, Nsukka.
- Nwankwo, C. F. 2017. Political Geography: Meaning, History and Basic Concepts. In: (Emenike, G. C. and T. C. Nzeadibe, eds.) Readings in Human Geography. Port-Harcourt: University of Port Harcourt Press Ltd., pp. 109–128.
- Nwankwo, C. F., 2018. Brexit: Critical Juncture in the UK's International Development Agenda? Open Political Science, 1(1), pp.16-19.Retrieved 4 Jul. 2018, from doi:10.1515/openps-2017-0003
- Obeta, M.C. and Nwankwo, C.F., 2015. Factors Responsible For Rural Residential Water Supply Shortage In Southeastern Nigeria. *Journal of Environmental Geography*, 8(3-4), pp.21-32.
- Peters, B.G., Pierre, J. and King, D.S., 2005. The politics of path dependency: Political conflict in historical institutionalism. *The journal* of politics, 67(4), pp.1275-1300.
- 18. Pierson, P., 2015. Power and path dependence. *Advances in Comparative-Historical Analysis*, pp.123-147.
- Pollitt, C., Harrison, S., Dowswell, G., Jerak-Zuiderent, S. and Bal, R., 2010. Performance regimes in health care: institutions, critical junctures and the logic of escalation in England and the Netherlands. *Evaluation*, 16(1), pp.13-29.
- Pollitt, M.G., 2017. The economic consequences of Brexit: energy. Oxford Review of Economic Policy, 33(suppl_1), pp. S134-S143.
- 21. Reid, C.T., 2016. Brexit and the future of UK environmental law. *Journal of Energy & Natural Resources Law*, 34(4), pp.407-415.
- 22. Revell, A. and Rutherfoord, R., 2003. UK environmental policy and the small firm: broadening the focus. *Business Strategy and the Environment*, *12*(1), pp.26-35.
- 23. Scotford, E. and Bowman, M., 2016. Brexit and Environmental Law: Challenges and Opportunities. *King's Law Journal*, 27(3), pp.416-419.
- 24. Scott, A., 2016. Brexit: implications for climate change commitments. *Briefing papers, Overseas Development Institute*.
- 25. Shepsle, K.A., 2006. Rational choice institutionalism. *The Oxford handbook of political institutions*, pp.23-38.
- Sorensen, A., 2015. Taking path dependence seriously: an historical institutionalist research agenda in planning history. *Planning Perspectives*, 30(1), pp.17-38.

- Suddaby, R., Foster, W. and Mills, A.J., 2014. Historical institutionalism. *Organizations in time: History, theory, methods*, pp.100-123.
- UK House of Lords UKHL, 2017. Brexit: environment and climate change. HL Paper 109. [online] Available at: https://publications.parliament.uk/pa/ld201617/ldselect/ldeucom/109/109.pdf> [Accessed 21 October 2017].
- Vohora, A., Wright, M. and Lockett, A., 2004. Critical junctures in the development of university high-tech spinout companies. *Research* policy, 33(1), pp.147-175.
- Ziv, G., Watson, E., Young, D., Howard, D.C., Larcom, S.T. and Tanentzap, A.J., 2018. The potential impact of Brexit on the energy, water and food nexus in the UK: A fuzzy cognitive mapping approach. *Applied Energy*, 210, pp.487-498.

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