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Considering Responsible Critical Minerals

(re)sourcing in Northern Ireland

Terms of Reference

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Rev 05 Final



Research Project Title

Considering responsible critical minerals (re)sourcing in Northern Ireland: Value chain stakeholder engagement.

Client

Research proposal for the NI Department for the Economy by Queen's University Belfast.

Research Team

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Aim/Terms of Reference

Strategic context. Critical minerals are at the beginning of all supply chains – at the gateway – in industrialised markets; the key input ingredients for manufacturing and everyday business activity. In one of the world's leading advanced manufacturing technology locations and major trading nations, a recent report (DERA) produced by the German Mineral Resources Agency noted that critical mineral policy is "indispensable to economic success" (p.4). The European Union is consulting on a Critical Minerals Act in recognition of the criticality of raw materials to deliver on the climate ambition of the European Green Deal. The UK government's Critical Minerals Strategy recognises the strategic position of minerals and is working towards de-risking and combating international supply chain disruptions by considering a range of policy levers as well as domestic supply opportunities and development of trade arrangements. It is sometimes easy to overlook the upstream activity of supply chains when much of the assessment of economic growth outputs is placed on the downstream.

The question of what the UK, EU and broader global position might look like within the context of Northern Ireland's *10X Economic Vision*, *Green Growth Strategy* and *climate adaption* remains less clear at this stage. The Department for the Economy has launched a Circular Economy Strategy¹ and an alternative model in which to rethink and reduce our use of Earth's resources. Understanding how that might look within the context of maintaining the value of products and critical minerals for as long as possible is an important consideration. It also recognises that climate adaptation approaches are also reliant on the supporting role of critical mineral inputs. For example, with the rapid development of wind energy technology in the past 15 years comes a new issue: how to decommission and dispose of wind turbine blades while also capturing the critical minerals contained therein. What is also unclear is the level and nature of critical mineral imports, and how

¹ <https://www.economy-ni.gov.uk/news/public-consultation-launched-draft-circular-economy-strategy-northern-ireland>



those critical minerals feed into, and across local, national and international supply chains. Taking stock of this activity will be an important policy consideration.

Consideration. This research proposal takes up this gap/issue and poses the following open-ended questions: should Northern Ireland consider a critical minerals policy? If so, what might that policy look like? What perceptions do stakeholder communities hold both upstream and downstream across the value chain? How might perceptions vary across the broad critical minerals value chain cycle? What might responsible (re)sourcing of critical minerals look like? How does NI policy on the circular economy relate to critical minerals? How do personal/core values shape individual stakeholder preferences across the value chain? How best do policymakers engage with various stakeholder groups on this critical minerals issue? What methodologies might be usefully employed to engage with stakeholders in a responsible and inclusive way?

The above questions reflect the open-ended remit and discussion that the Department for the Economy wishes to have across the broad focus upstream and downstream of the value chain. The above open-ended questions, moreover, suggest that there is a need for this exploratory stakeholder research, particularly on value chain stakeholder analysis.

Towards this end, a fair, responsible and equitable research sampling approach is needed, and we believe one which accurately samples across the entirety of the value chain. One way to do this is to sample a range of community positions. Our proposed research work adopts the broad idea of communities from an international and widely accepted categorisation developed by Wüstenhagen et al. (2007)². This comprises three pillars: (i) socio-political community (ii), local community and (iii), market community.

Socio-political community refers to the general societal climate towards critical minerals within a society, i.e. it relates to typical discussions about a topic or socially desirable opinions. Socio-political acceptance is shaped and mirrored by opinion leaders, local councils, MLAs, media etc.

Local community is mostly relevant for decisions and refers to the attitudes and behaviours exhibited by neighbours of installations or others somehow affected by the critical mineral (re)sourcing without actually using them.

Market community refers to market actors, i.e. supply and demand side as well as intermediate actors like SMEs, firms, trade associations, advisors, consultants etc.³

The nature of the critical mineral value chain issues might not be fully understood across different communities. It is therefore imperative that the development of solutions begins with a consideration of the differing perceptions of the issues that different communities face. In this way, the interplay between the institutional value system that guides individual attitudes and perceptions will be explored.

² Wüstenhagen, R., Wolsink, M., & Bürer, M. J. (2007). Social acceptance of renewable energy innovation: An introduction to the concept. *Energy Policy*, 35(5), pp. 2683–2691.



Overall Aim and Research Design

The overall aim of the research is to draw out and understand stakeholders' perceptions on responsible (re)sourcing of critical minerals across the value chain circularity.

It is expected that the QUB-led value chain stakeholder engagement on critical minerals will afford the opportunity for stakeholders across the value chain to participate and to give and express their opinions of critical minerals value chains. It is expected that the QUB-led research engagement work will inform consideration of the policy position on critical minerals, and subsequent amendment of the Mineral Development Act (Northern Ireland) 1969 legislation, enhance licensing and regulation practices, derive insights into emerging critical mineral SMEs and innovative technology trends across the value chain, strengthen circularity of critical mineral life-cycles, map industrial and research strengths, assess required NI policy levers and identify a prioritised set of actions. Specifically, the research design and deliverables comprise the following:

Deliverables:

- 1) **Small focus group meeting.** In this proposed research work, we will conduct an in-depth focus group at Riddel Hall, Queen's University Belfast. QUB to host, run and report on.
- 2) **NI Imports data for critical minerals and graphical presentation and analyses.**
- 3) **Consultation with MLAs.** QUB to undertake telephone 5 x interviews. All-party representation of energy, green transition and/or sustainability spokesperson for each of the main political parties.
- 4) **Consultation with CRM Research/Market/Business/technologists.**
- 5) **1 x Workshop with Market/Business stakeholders and supporting institutional value chain actors at Riddel Hall, QUB.**
- 6) **1 x Workshop with community stakeholders and supporting institutional value chain actors at Armagh.**
- 7) **Co-create, co-analyse and co-present 2x workshop data.** Collect, analyse and feedback.
- 8) **Delphi method survey.**⁴ In this proposed research work, we will conduct a survey of experts within the critical minerals field.

Overall this research work is exploratory in nature. This action research plan relies on building and encouraging open consideration, the sharing of diverse opinions, enabling emergent consensus and solutions to be found within those opinions. Specifically, this stakeholder engagement research will follow the Circular Policy Methodology (CPM) and this is outlined more fully elsewhere (See Palmer et al. 2022).⁵ That is, it enables collaborative decision-making, for making shared, robustly defended, broadly considered decisions.

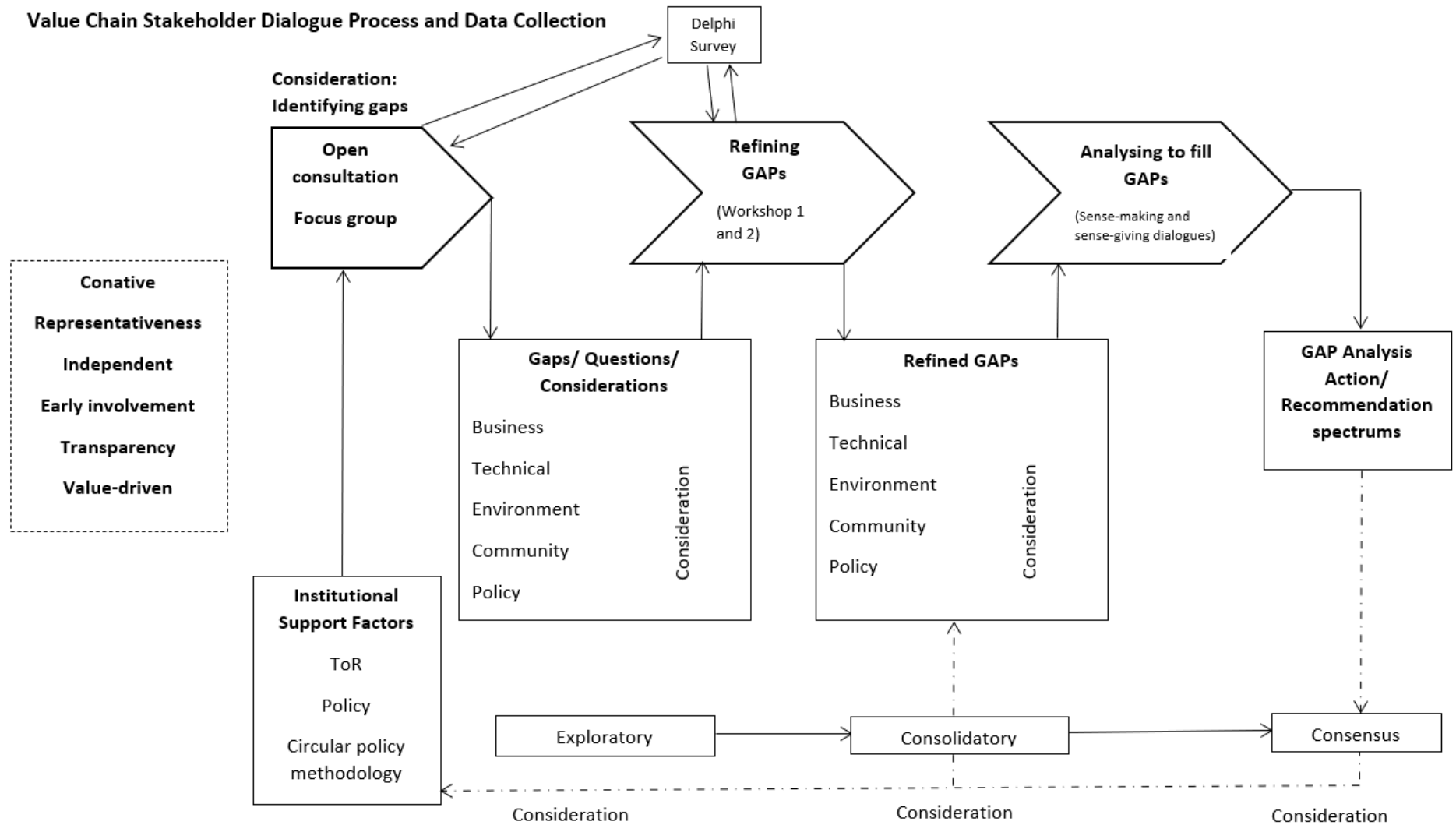
The following diagram (overleaf) outlines the different parts of the research design and how each fits within the overall research process.

⁴ Bolger, F. and Wright, G. (2011) Improving the Delphi process: lessons from social psychological research. *Technol Forecast. Soc Change*, 78, 1500–1513.

⁵ Palmer, M., Ireland, J., Ofterdinger, U., Zhang, M. (2022). #NIgeothermalWeek: Defining the vision for geothermal energy in Northern Ireland. Department for the Economy. Technical Report, pp.1-54. See Appendix 2 for an overview of the Circular Policy Methodology (CPM).



Value Chain Stakeholder Dialogue Process and Data Collection



Source: Developed by the authors

