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DEVELOPMENT OF A CONCEPTUAL MODEL TOWARDS AN INNOVATIVE SOLUTION FOR MARINE ENERGY DECISION-MAKING





Doctoral *viva voce* presentation

Marcus Lange

Cork, 22 June 2018

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MaREI
Centre for Marine and Renewable Energy

Science Foundation Ireland
SFI For what's next

OUTLINE

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- Context and point of departure
- Objective and research questions
- State of research
- Methodological approach
- Key findings and results
- Conclusions and new model
- Publications and conference presentations

CONTEXT

- Energy transitions have become a **global strategic imperative** /because of climate change.
- Europe is a **leader in the development and commercialisation** of marine renewable energy.
- **Learning from good and bad practice** is essential to progress towards alternative energy futures and to improve strategic energy policy.

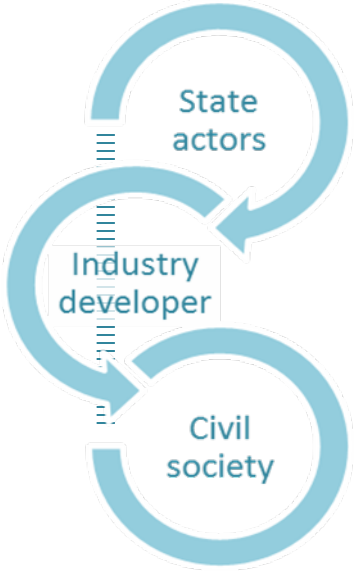


Gas drilling rig used in Irish waters © Irish Offshore Operators' Association

POINT OF DEPARTURE

- The marine energy sector faces a range of challenges, including technological and importantly governance challenges (Lange et al., 2018a).
- In order to develop innovative responses to today‘s challenges a broad view on the issues is needed.

- The point of departure for this research was the interplay across governance domains:
  - policy and regulation,
  - industry development, and
  - public engagement



OBJECTIVE AND RESEARCH QUESTIONS

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Development of a conceptual generic model that describes the different components of marine energy governance with a focus on Ireland.

Guiding research questions

- How to improve governance in order to enhance management in response to the need to enable energy transitions?
- How to avoid repeating past mistakes and that decisions are not made in the absence of the public interest, industry development or policy-making and regulation?

STATE OF KNOWLEDGE

Theoretical understanding

- Governance of natural resources describes how societies make decisions, share power, ensure accountability and take actions in response to diverse dynamics and complex challenges today (Folke et al., 2005; Kooiman, 2003).
- Central are formal and informal institutions, policies and policy ideas that are in use to set the rules for collective decision-making (Folke et al., 2005).

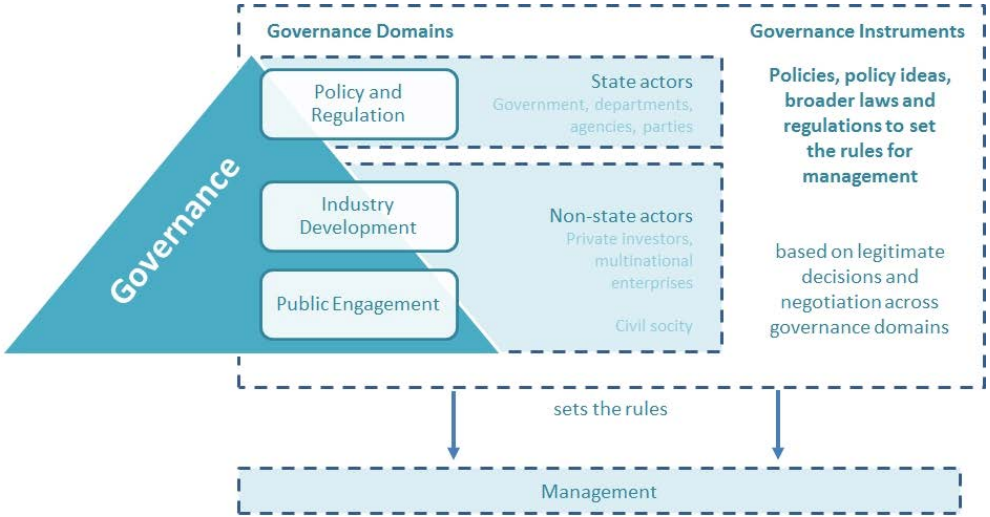






STATE OF KNOWLEDGE

Theoretical understanding



Governance understanding (Lange et al., 2018a, *J. Energy Policy)*

- Management is concerned with the application of these rules and operationalisation of policy visions (Folke et al., 2005).
- Governance sets the stage for management (Olsen et al., 2011).
- Governance of marine use activities is grounded within a framework of governmental and non-governmental actors (van Tatenhove, 2013)

STATE OF KNOWLEDGE

Theoretical understanding

- Governance becomes “useful and necessary to marry unlikely partners with a view to seeing scientific problems through a common lens and to finding answers to problems posed in a multidisciplinary context” (Kotzé, 2012, p. 12).

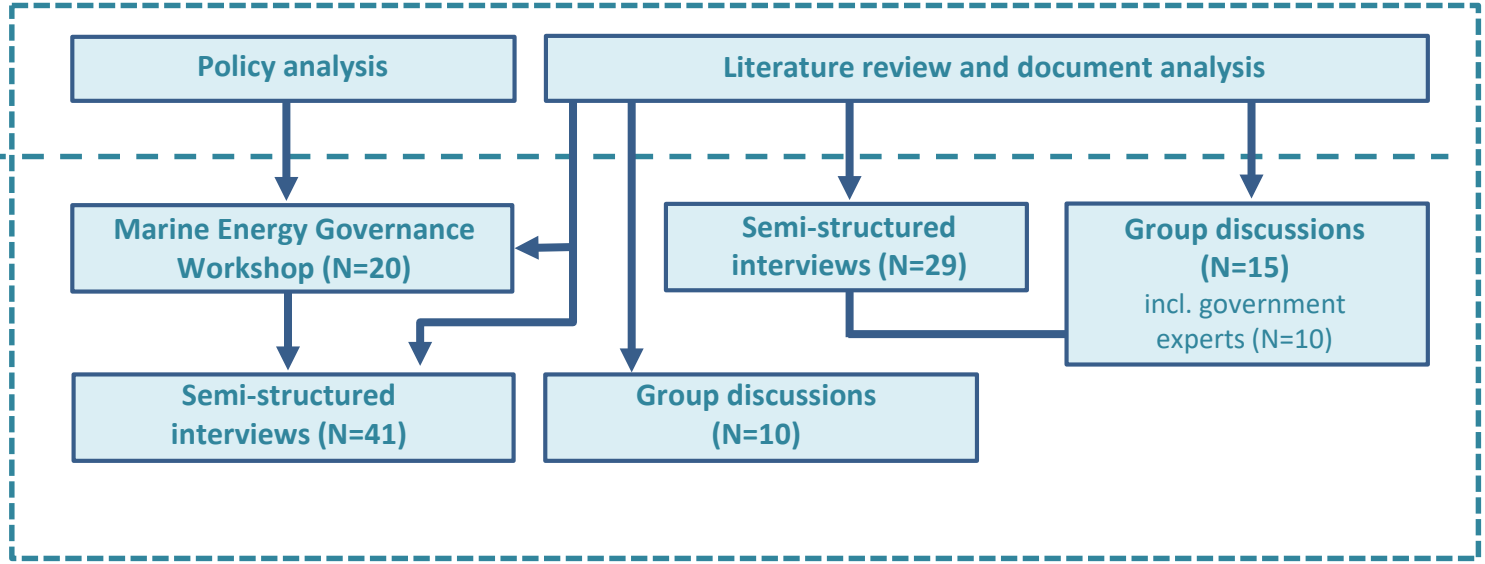
- Joint ‘good governance principles’ (based on Biermann, 2007; Chang, 2012; Costanza et al., 1998; Rhodes, 2010):
  - “participation”,
  - “transparency”,
  - “equity and inclusiveness”,
  - “adaptability” and
  - “adaptive management”.

METHODOLOGICAL APPROACH

Methods

Desktop-based approach

Collaborative multiple stakeholder approach



METHODOLOGICAL APPROACH

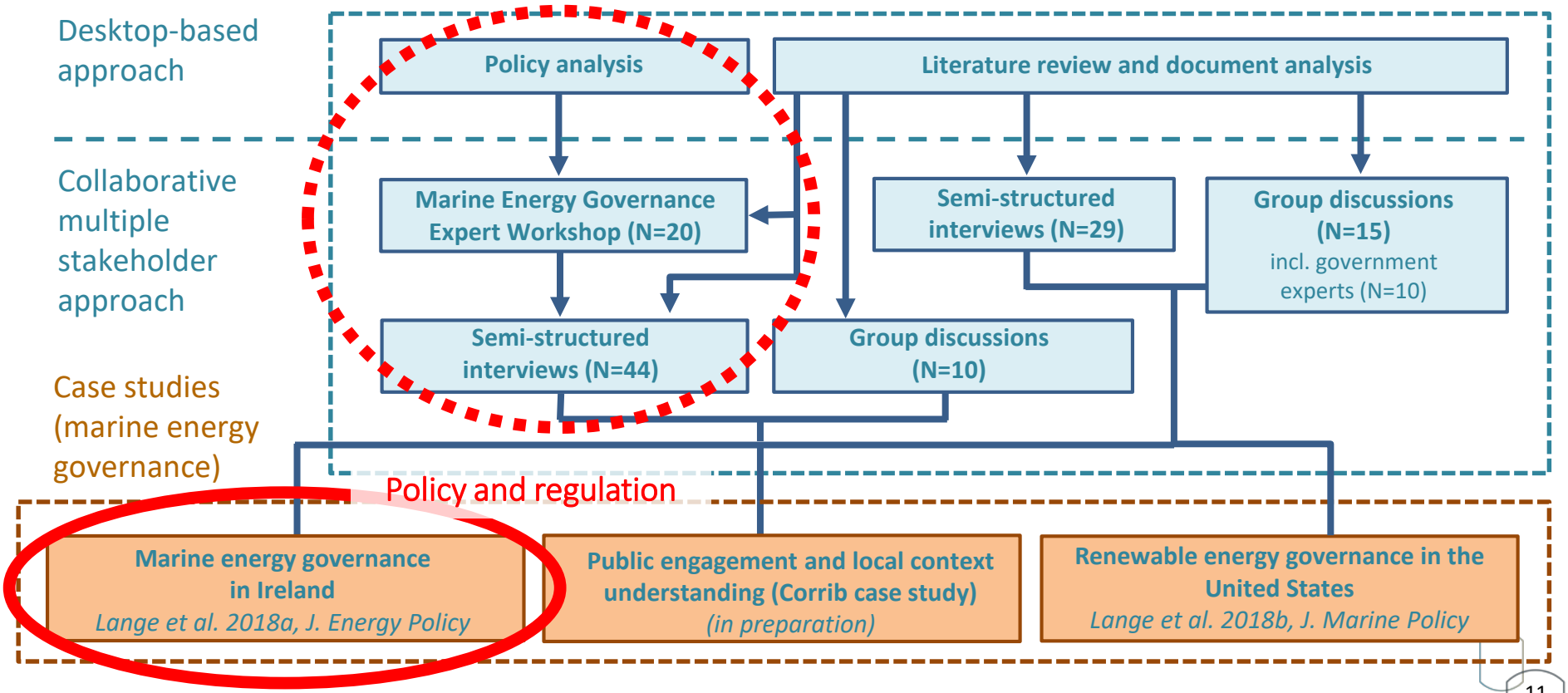
Interview study

Balanced spread amongst domains (even if not representative)

Governance Domain	Interviewees/ participants	Number of interviews	Group discussions
Civil society	29	17	2
Industry development	23	11	1
Policy and regulation (government)	31	19	1
Academia and Research	12	9	-
Subtotal	**95**	**56**	**4**
"Marine Energy Governance Workshop"	20	-	1
Total number	**115**	**56**	**5**

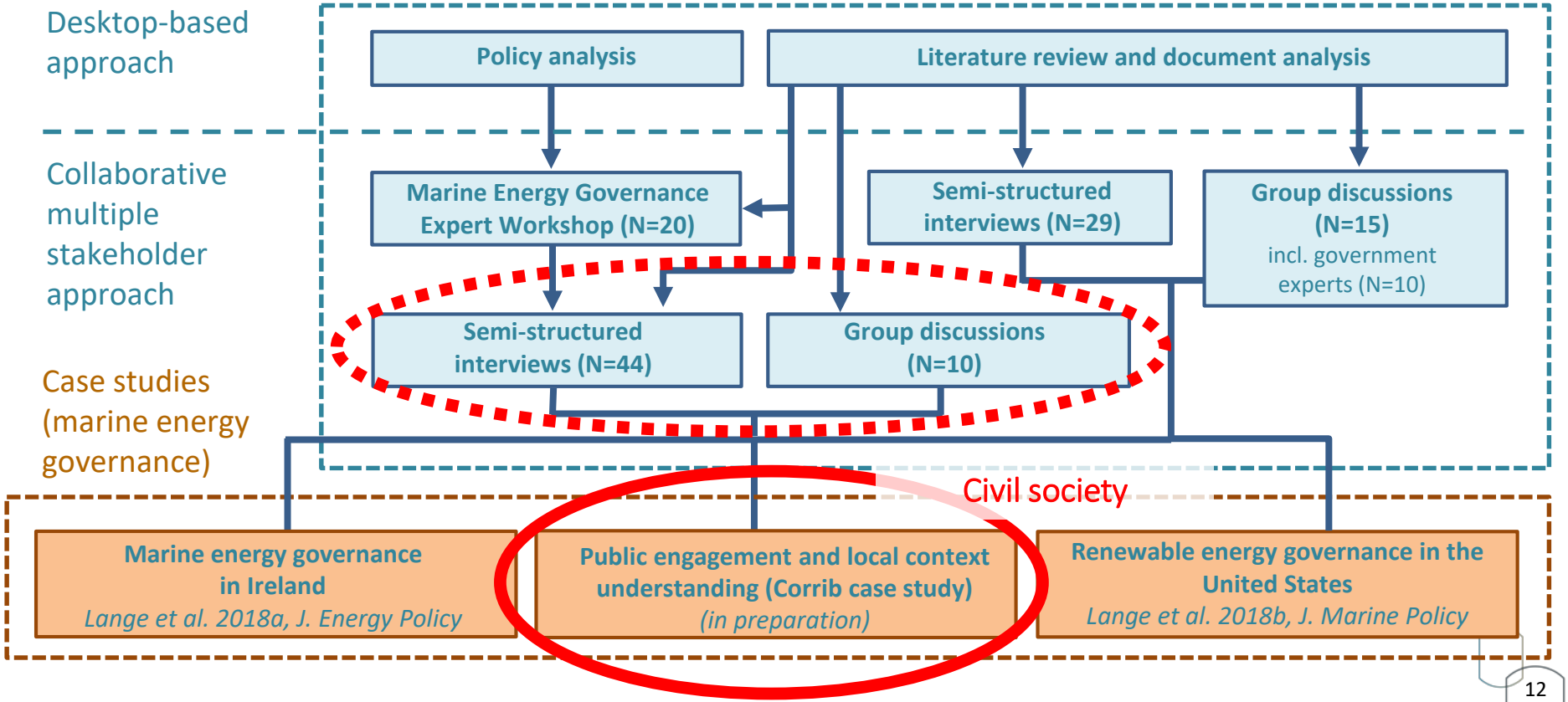
METHODOLOGICAL APPROACH

Case studies



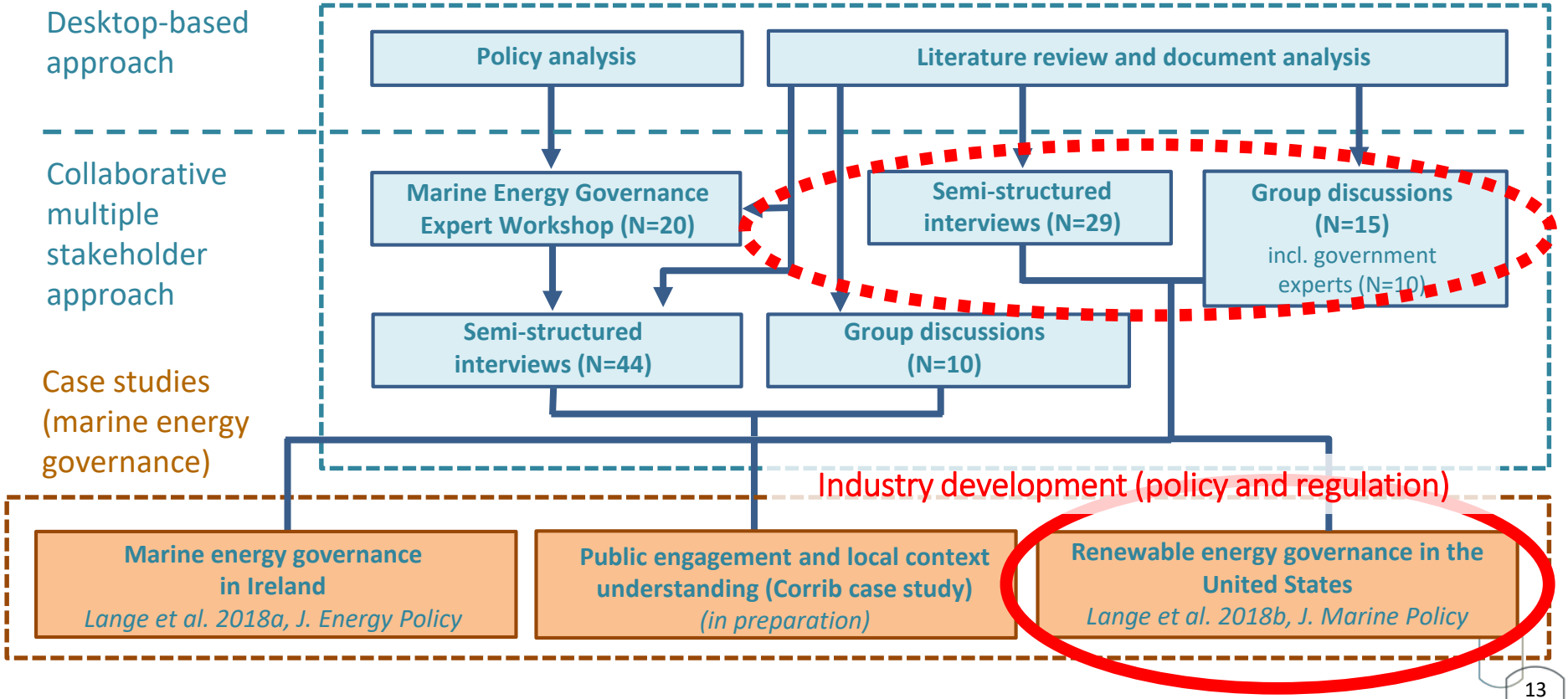
METHODOLOGICAL APPROACH

Case studies



METHODOLOGICAL APPROACH

Case studies



Pillar 1: Policy and regulation

Context and results

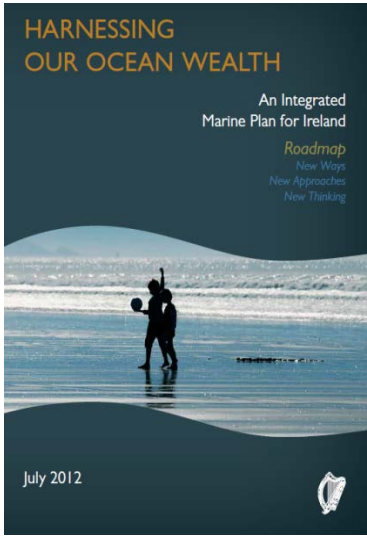


CONTEXT FOR POLICY AND REGULATION

- Growth in maritime economy to € 6.4 Bio. per year by 2020 (€ 3.5 Bio. in 2010); double in GDP to 2.4 % by 2030 (DAFM, 2012).
- Large investments in MRE research and development shows significant policy support.







Harnessing Our Ocean Wealth
DAFM, 2012)

Galway Bay Test Site
© Marine Institute

National Ocean Test Facility
© UCC, ERI

INITIAL FINDINGS OF REVIEW

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- Goal is to transform the energy system **from imported fuel dependency to indigenous use of marine energy** (renewables and offshore oil/gas).
- Yet Irish **ambitions appear stalled**; little activity is underway.

INTERVIEW STUDY AND WORKSHOP

- 34 interviews, two group discussions, 51 stakeholders
  - January 2015 – March 2017, Dublin, Cork, Co. Mayo, via phone
  - Stakeholders from all governance domains
- Semi-structured, confidential interviews.

- Marine Energy Governance workshop,
  - May 2015, Newbridge, Co. Kildare
  - 20 invites from renewable/non-renewable energy sector
- Focus was on **perspectives of industry developers** and a **review of governance framework**.



RESULTS OF POLICY AND REGULATION REVIEW

- Existing forms of governance **are not fit for purpose**.
- Sectoral policies exist but **there is a disconnect between domains.**
- Operations within certain domains and structures **are fragmented**; institutions **are poorly interconnected**.

- There is **no central independent authority for energy governance**.
- **Unclear and incoherent regulation** for energy developments exist.
- A *one-stop-shop* approach can overcome some of the barriers.

Pillar 2: Civil society

Context and results



CONTEXT FOR CORRIB CASE STUDY





Source: The Journal.ie

thejournal.ie
READ, SHARE AND SHAPE THE NEWS
FORA THE 42 THE DAILY EDGE

Irish Politics International Voices Family Culture Tech Business My Feed

Tags # ACTIVISTS # CONSTRUCTION # CORRIB PIPLINE # DUBLIN PORT TUNNEL

'Shell can celebrate all they want, but the fight is by no means over'

The newly constructed tunnel has been mired in controversy as it will house the onshore section of the Corrib gas pipeline.

May 23rd 2014, 11:13 AM 20,961 Views 105 Comments

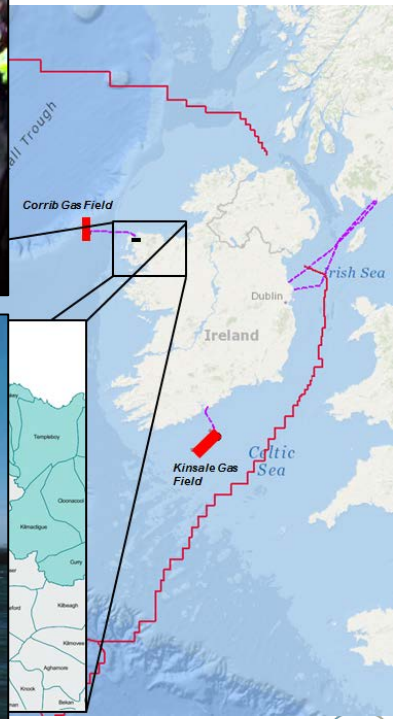
Share 25 Tweet 31 Email 37

THE COMPLETION OF the longest tunnel in Ireland is being celebrated by Shell Ireland – but the works have not been without disruption or tragedy.





Picture: Irish Times



e Institute, 2016; National Library of Ireland, 2017

INTERVIEW STUDY

- 27 interviews, two group discussions, 44 stakeholders
  - January 2015 – March 2016, in three parishes, West Coast, Co. Mayo
  - Stakeholders from all governance domains (whole spectrum of local community)
- Non-standardised, deliberately broad and partly open-ended interviews.
- Focus on the **perceptions and expectations of local citizens** and of stakeholders from the other domains; aim was to explore key **dispute issues.**



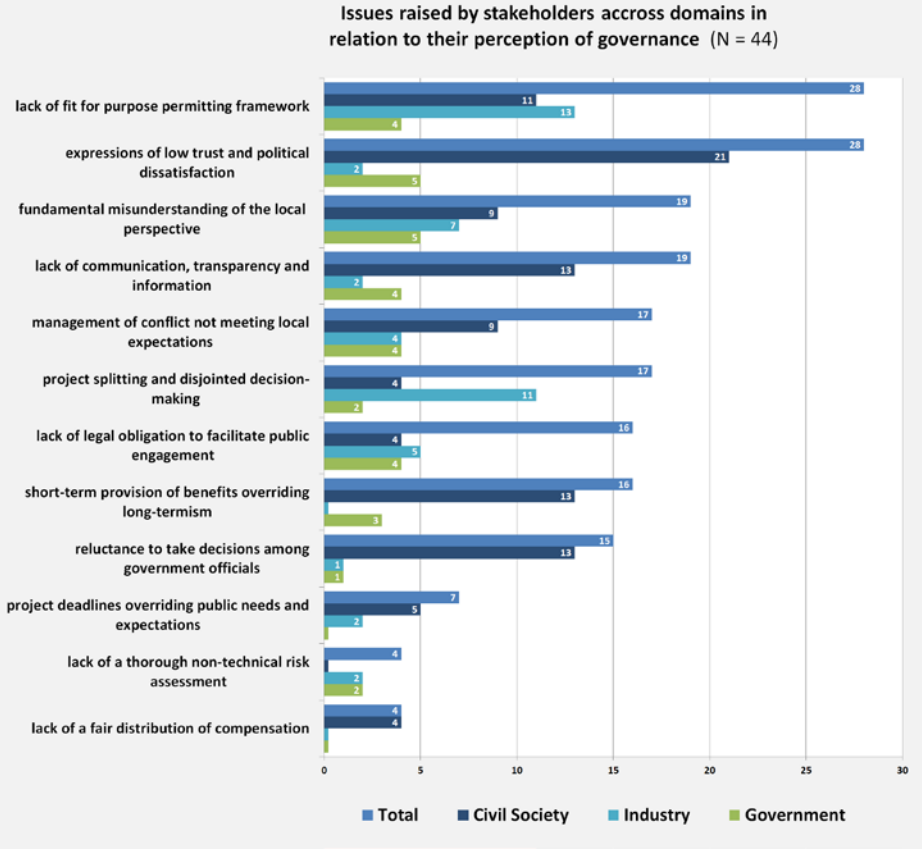


FINDINGS OF DISPUTE ANALYSIS

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4 Key issues (raised by stakeholders)

- ‘Lack of fit for purpose permitting framework’ (64 %) (referring to ‘lack of a legal obligation for engagement’, 36 %)
- ‘Expression of low trust and political dissatisfaction’ (64 %)
- ‘Fundamental misunderstanding of the local perspective’ (43 %)
- ‘Lack of communication, transparency and information’ (43 %)

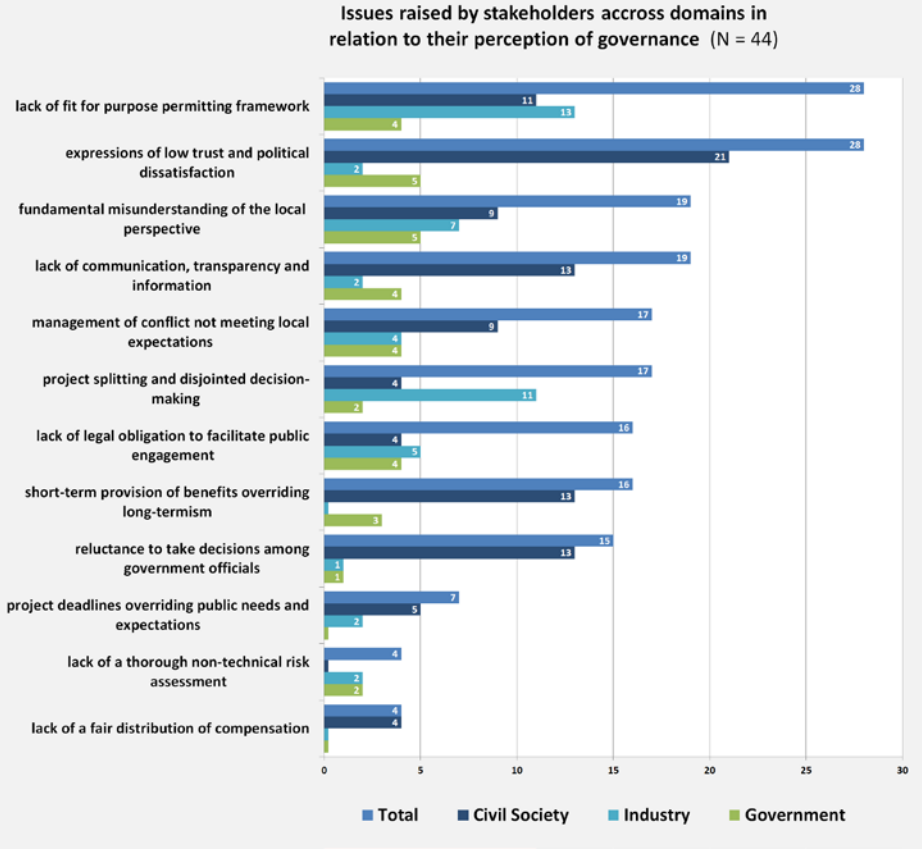


FINDINGS OF DISPUTE ANALYSIS

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Other issues

- ‘Project splitting and disjointed decision-making’ (39 %)
- ‘Short-term provision of benefits overriding long-termism’ (36 %)
- ‘Reluctance to take decisions among government officials’ (34 %)
- ‘Lack of a fair distribution of compensation’ (9 %).



RESULTS OF CASE STUDY ANALYSIS (CIVIL SOCIETY)

- Indication of **close interplay between government and industry**.
- Government **failed to safeguard public interest**.
- Communication on **challenges and opportunities was missing**.
- There was a complete **misunderstanding of the local context**.

Pillar 3: Industry development

Context and results



CONTEXT FOR INDUSTRY DEVELOPMENT IN THE U.S.

- Significant work was underway in pilot-testing of MRE devices; ambitious development at R&D level (industry and academic).
- New policy windows were opening /because of implementation of special area management plans and incorporate ICM approaches into planning.
- The „Cape Wind“ project was cancelled due to failures in pre-planning and numerous litigations.

INTERNATIONAL CASE STUDY ANALYSIS

- 22 interviews, two group discussions, 44 stakeholders
  - Study visit, three weeks, winter 2015, initiatives in State of Maine, Rhode Island, Maryland, D.C.
  - Expert led-approach (federal level) and interviews (community/local level).
- Non-standardised and partly open-ended interviews.
- Focus on **challenges** and **opportunities** of MRE developments at the local level; identification of prerequisites for success at federal government level.







RESULTS OF U.S. CASE STUDY ANALYSIS

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- Private developers **suffer from uncertainty** /due to uncertain tax processes.
- Current systems **miss strategy, government commitment and sufficient congressional capacity.**
- Regulation **misses joined up and robust permitting** /due to multi-level/-agency regime.



Rhode Island Ocean Special Area Management Plan

- Plan-led approaches and nested systems for energy **governance can bring in multiple views and set future priorities**.
- **Industry developers can provide integration** through meaningful stakeholder engagement.

RESULTS

- Private developers **suffer from uncertainty** /due to uncertain tax procedures.
- Current systems **miss strategy, government commitment and sufficient congressional capacity.**
- Regulation **misses joined up and robust permitting** /due to multi-level/multi-agency regime.

Rhode Island Ocean Special Area Management Plan

"Where the state is unable to govern effectively, other actors from market and civil society move in prominent governing positions" (Kooiman and Bavinck, 2013)

- Plan-led approaches and nested systems for energy **governance can bring in multiple views and set future priorities**.
- **Industry developers can provide integration** through meaningful stakeholder engagement.

OBJECTIVE AND RESEARCH QUESTIONS - REVISITED

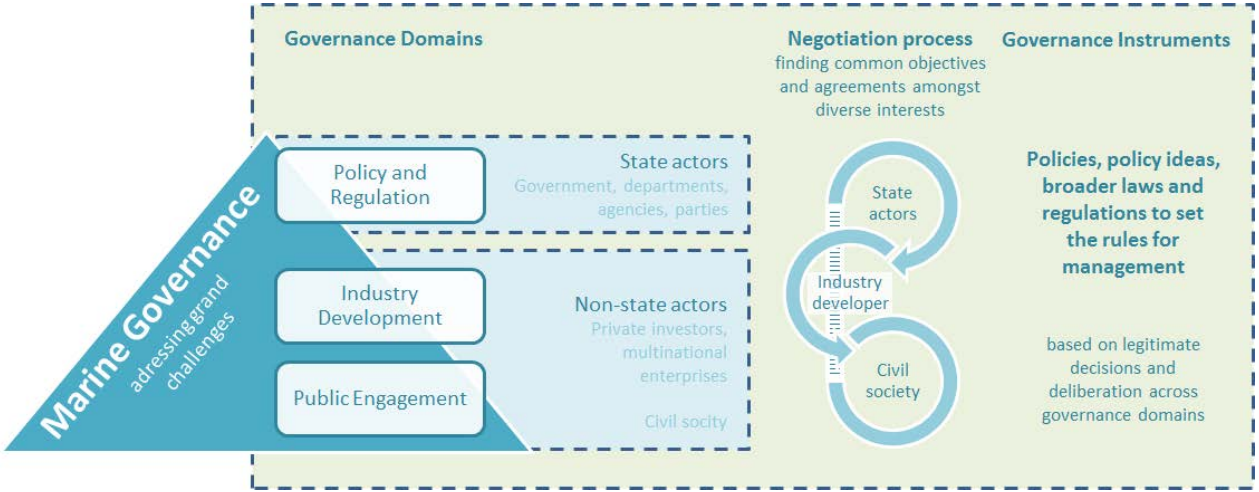
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

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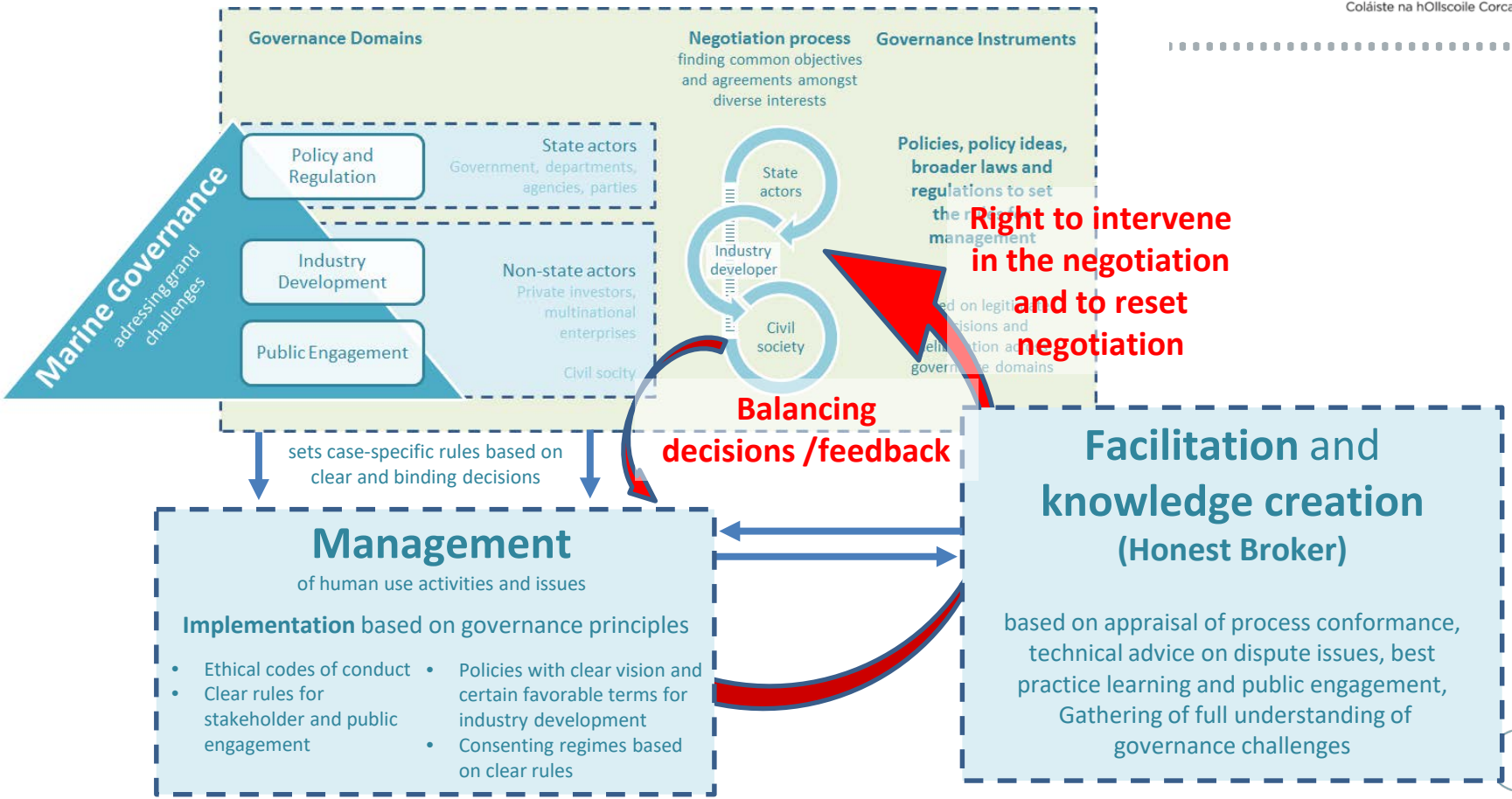
Guiding research questions

- How to improve governance in order to enhance management in response to the need to enable energy transitions?
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CONCEPTUAL MODEL



CONCEPTUAL MODEL



FINAL CONCLUSIONS AND RECOMMENDATIONS

- A **missing connection** has been identified in the current interplay across domains and management (practice).
- **Facilitation** and **knowledge creation** must be added to current principles of good governance (theory).
- Disconnect needs to be overcome by **the new model in terms of**
  - ethical codes of conduct to which all stakeholders agree;
  - intervention of an **honest broker** (person/group) who is trusted and knowledgeable.
- The establishment of a processes (model application) may ensure **fair balances of power in governance** relations; therefore it needs it needs testing in reality.
- The final model adds to traditional forms of planning and governance **by linking perceptions of multiple stakeholders to major challenges** (needs and expectations)
- Model can be readily applied in challenging situations but **governance contexts differ at very different scales** (not an *one-size-fits all solution*).

STATE OF KNOWLEDGE AND NEW PRINCIPLES

Theoretical understanding

- Joint ‘good governance principles’ (based on Biermann, 2007; Chang, 2012; Costanza et al., 1998; Rhodes, 2010):
  - participation,
  - transparency,
  - equity and inclusiveness,
  - adaptability,
  - adaptive management,
  - **facilitation** of governance collaboration and integration,
  - **knowledge creation.**

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Thanks for your attention!







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PUBLICATIONS AND CONFERENCE PRESENTATIONS

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Publications

- Lange, M., O'Hagan, A.M., Devoy, R., Le Tissier, M., Cummins, V., 2018a. **Governance barriers to sustainable energy transitions - Assessing Ireland's capacity towards marine energy futures**. *Energy Policy* 113, 623-632
- Lange, M., Page, G., Cummins, V., 2018b. **Governance challenges of marine renewable energy developments in the U.S. – Creating the enabling conditions for successful project development**. *Marine Policy* 90, 37-46

Conference presentations

- 2nd International Ocean Research Conference **2014**, Barcelona, Spain
- Facing the Future Conference **2016**, Aberdeen, United Kingdom
- 56 Estuarine Coastal Sciences Association (ECSA) Conference **2016**, Bremen, Germany
- Nairobi Conference on Earth System Governance **2016**, Nairobi, Kenya



"We need more research on power dynamics, (…) on how decisions are made domestically and internationally to expose what we know is happening in those countries in order to accelerate change!"

Jennifer Morgan (Greenpeace International)

Berlin Conference, May 2016

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