Institution: London School of Economics and Political Science		
Unit of Assessment: 14 - Geography and Environmental Studies		
Title of case study: Shaping global climate change policy		
Period when the underpinning research was undertaken: 2000-2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	**Role(s) (e.g. job title):**	**Period(s) employed by submitting HEI:**
Alina Averchenkova	**Distinguished Policy Fellow, GRI**	**2013 to present**
Sam Fankhauser	**Director, GRI**	**2008-2021**
Nicholas Stern	**Chair, GRI**	**2007 to present**
plus Swenja Surminski	Distinguished Policy Fellow	2010 to present
plus Misato Sato	Assistant Professorial Research Fellow	2013 to present
Period when the claimed impact occurred: 2013-2020		
Is this case study continued from a case study submitted in 2014? No		

1. Summary of the impact (indicative maximum 100 words)

LSE's Grantham Research Institute (GRI) has actively supported the adoption and implementation of the historic Paris Agreement at both national and international levels. GRI research has had particular impacts on:

- The creation of an attractive new narrative around sustainable growth and opportunities, which is now driving global climate action.
- National climate policy and legislation, including documenting good practice and helping several countries pass climate legislation. This includes a strong impact on climate policy in the UK, the first major economy to legislate a Paris-aligned net-zero emissions target.
- Global understanding of the crucial importance of international climate finance. This has informed an increased flow in climate finance by development banks, particularly in infrastructure.

2. Underpinning research (indicative maximum 500 words)

GRI provides a unique environment for interdisciplinary, impact-oriented research intended to shape the global climate debate. GRI research combines disciplinary rigour with a diversity of analytical perspectives, including economics, finance, geography, law, and international development. The impacts described here are underpinned by a wide body of GRI work but draw particularly on the research outlined below.

Reframing climate action in terms of sustainable growth and opportunity

Ongoing GRI research provides a rigorous analytical framework, grounded in welfare economics, for the argument that good climate policy does *not* entail economic harm. The work is creating a powerful evidence base on sustainable growth; this demonstrates that, by avoiding the negative impacts of climate change and by catalysing clean innovation and investment, climate policies will simultaneously enhance prosperity and growth. The work further shows that climate policies deliver a range of additional societal co-benefits, such as reduced illness and mortality from air pollution. A good example of this strand of GRI research is published in **[1]**.

Understanding national climate policy in support of the Paris Agreement

GRI has assessed the global momentum in national climate action, including by tracking and analysing the emergence of climate legislation. In addition to academic work, a key output is Climate Change Laws of the World (CCLW), an open-access database of detailed information about climate change laws and executive acts in 196 countries, and climate court cases in 35 countries. CCLW receives approximately 5,000 page visits each month. The database is the most comprehensive and prominent of its type anywhere in the world: at the end of 2020, it contained approximately 2,000 climate change laws and approximately 350 court cases.

Using these data, GRI researchers have analysed the conditions for climate policy success in different socio-economic and political contexts. A 2018 study of the UK Climate Change Act

2008, which is considered world-leading, has helped to identify the core elements of an effective climate law **[2]**. These include: clear long-term targets, rolling short-term targets, agreed duties and statutory timelines, and close scrutiny through an independent body. Parallel case studies of Mexico, South Africa, and Tanzania provide evidence of climate action in different contexts, identifying challenges and ways to advance national policies. A typical example of this strand of GRI research is **[3]**.

Making the case for climate finance and sustainable infrastructure

International commitments to climate finance are a key aspect of the Paris Agreement. GRI work on climate finance has highlighted the importance of infrastructure investment, emphasising that these long-lived investments lock in unsustainable emissions levels and climate vulnerabilities for decades (see, for examples, **[4]** and **[5]**). The research identifies emerging markets (especially China) as the main drivers in global infrastructure investment, which could reach USD90 trillion between 2015 and 2030. It explores new mechanisms through which multilateral development banks could scale up low-carbon finance, including by helping to leverage private investments (see **[1]** and **[4]**).

UK climate change policy: developing better evidence and new methods

UK climate policy is a natural focus for GRI, and the Institute conducts extensive research on ways both to reduce emissions (mitigation) and to manage the impacts of climate change (adaptation). Of particular relevance here is GRI research helping to alleviate concern that strong action on mitigation might disadvantage UK industry. Careful statistical analysis demonstrated that climate action in the UK and Europe has so far had no negative impacts on firm profitability, competitiveness and jobs, but has in fact led to increased innovation (see, for example, **[6]**). The policy and legislation work introduced above (see **[4]**) strengthened policy resolve by demonstrating that the UK is not acting alone.

GRI research has contributed to the adaptation debate through the development of a coherent framework for adaptation planning and climate change risk assessment. Since 2010, GRI has advanced practical decision-making heuristics to support adaptation choices. An important facet of this work is its focus on prioritisation: the work identifies circumstances where fast-tracking adaptation is desirable to prevent long-term vulnerability patterns being locked in (e.g. in the context of coastal development) or made greater by delaying adaptation action. Good examples of this work are published in **[5]** and **[7]**.

3. References to the research (indicative maximum of six references)

Impacts described here are supported by a wide set of diverse research and policy outputs. The following are illustrative examples of that wider body of work (* = peer-reviewed).

[1] Stern, N. (2015). *Why are we waiting? The logic, urgency, and promise of tackling climate change*. MIT Press. ISBN: 9780262029186. Google Scholar citations: 277.

[2]* Averchenkova, A., Fankhauser, S., and Finnegan, J. J. (2020). The impact of strategic climate legislation: evidence from expert interviews on the UK Climate Change Act. *Climate Policy*, 21(2), pp. 1-13. DOI: 10.1080/14693062.2020.1819190. Google Scholar citations: 4.

[3] Averchenkova, A., Fankhauser, S., and Nachmany, M. (Eds.) (2017). *Trends in Climate Change Legislation*. Edward Elgar Publishing. ISBN: 9781786435774. Google Scholar citations: 24.

[4] Bhattacharya, A., Romani, M., and Stern, N. (2012). *Infrastructure for Development: Meeting the Challenge*. Grantham Research Institute on Climate Change and the Environment. Available at: https://www.lse.ac.uk/granthaminstitute/publication/infrastructure-for-development-meeting-the-challenge/. Google Scholar citations: 152.

[5] Ranger, N., Millner, A., Dietz, S., Fankhauser, S., Lopez, A., and Ruta, G. (2010). *Adaptation in the UK: A Decision Making Process*. Grantham Research Institute on Climate Change and the Environment. Available at: https://www.lse.ac.uk/GranthamInstitute/publication/adaptation-in-the-uk-a-decision-making-process/. Google Scholar citations: 142.

[6]* Dechezleprêtre, A. and Sato, M. (2017). The impacts of environmental regulations on competitiveness. *Review of Environmental Economics and Policy*, 11(2), pp. 183-206. DOI: 10.1093/reep/rex013. Google Scholar citations: 277.

[7]* Adger, W. N., Brown, I., and Surminski, S. (2018). Advances in risk assessment for climate change adaptation policy. *Philosophical transactions. Series A, Mathematical, physical, and engineering sciences*, 376(2121). DOI: 10.1098/rsta.2018.0106. Google Scholar citations: 25.

4. Details of the impact (indicative maximum 750 words)

The body of work outlined above has had wide-ranging impacts on the global climate change debate and on the adoption and implementation of the Paris Agreement - the crucial global umbrella agreement for international climate action. Four particularly prominent areas of impact are described here.

Reframing the global narrative around sustainable growth

GRI research (e.g. **[1]**) has substantiated the "sustainable growth" narrative and documented economic opportunities arising from climate action. Professor Nick Stern has used his global leadership roles to communicate this powerful message to maximum effect, for example through the Global Commission on the Economy and Climate. Co-chaired by Stern, the Commission's first report, *Better Growth, Better Climate*, was launched at the United Nations (UN) in New York in September 2014, at an event attended by world leaders and by the UN Secretary-General. The report underscored the message of urgency and low-carbon growth promoted by GRI and highlighted additional benefits of action on climate change, as set out in **[1]**.

The evidence base this provides has been instrumental in shifting global understanding of climate action among policymakers in ways that support proactive climate action. It helped set the tone of international discussion ahead of the 2015 UN Climate Change Conference in Paris. According to Christina Figueres, Executive Secretary of the UN Framework Convention on Climate Change at the time of the Paris Agreement:

> *"[GRI's] consistently compelling analyses of the economics of climate change have shifted the debate on decarbonisation from burden to opportunity and growth. It is this new understanding that will allow us to effectively address climate change*." **[A**, p. 3**]**.

Stern's influence on the discussion is further underlined by his inclusion on a list of the 99 global leaders who created the Paris Agreement on the official "Profiles of Paris" website.

The low-carbon growth narrative supported by GRI research is now ubiquitous in high-level policy organisations such as the Organisation for Economic Cooperation and Development (OECD), the World Bank, and the European Commission, many of which use GRI research. Angel Gurria, Secretary-General of the OECD states:

> *"[GRI] has made a great contribution…to shaping the global debate on climate change and the protection of the environment. The OECD is proud of our fruitful collaboration, which extends not only to research and analysis, but also to advocacy. The Institute has been an indispensable partner in our efforts to disseminate the work of the OECD in this area and communicate the policies needed to leave a better planet to future generations."* **[A**, p. 4**]**

Impacts on climate policy and legislation around the world

GRI research on national climate policy (e.g. **[3]**), supported by the unique CCLW database, offers powerful tools for legislators and policy stakeholders to learn from international experiences on how to meet the Paris objectives. According to Mary Robinson, President of the Mary Robinson Foundation - Climate Action, the CCLW database has been:

> *"invaluable to my Foundation in assisting countries to respond to recommendations on climate change as part of the Universal Periodic Review of the Human Rights Council."* **[A**, p. 3**]**

In his intervention at the Paris summit, then-UK Prime Minister David Cameron quoted GRI's climate legislation statistics to remind parties that they were already acting on climate change

[B]. This reference was intended to underscore the fact that a global agreement based on individual country contributions was entirely possible.

GRI research on international experiences in climate policy formulation (such as **[3]**) is also used by the Inter-Parliamentary Union (IPU), the official UN organisation for parliamentarians. IPU has routinely disseminated co-branded annual updates on climate change legislation to its member parliaments (see **[C]**) and Alina Averchenkova is involved regularly in their events. As Martin Chungong, Secretary-General of the IPU explains:

> *"These publications constitute a significant knowledge capital for parliaments: they are an important resource that MPs can consult at any time during their legislative work. Parliamentarians are a crucial element of any successful strategy for tackling climate change and are duty-bound to enact and amend laws, approve national budgets and hold governments to account."* **[A**, p. 9**]**

Averchenkova and the GRI team have provided expert advice to national parliaments and high-level decision-makers in more than 10 countries. One example of the impacts of this comes from New Zealand, where officials drew heavily on GRI research in developing a new, Paris-aligned "net zero" carbon law, which was passed in November 2019. GRI input to the development of this law was supported via regular exchanges (e.g. to review draft reports) between Averchenkova and Professor Sam Fankhauser at the LSE, and the New Zealand Ministry for Climate Change, the Parliamentary Environment Committee, the independent Productivity Commission, and the influential Parliamentary Commissioner for the Environment. The New Zealand law very closely reflects GRI thinking (as expressed, for example, in **[3]**) on issues such as target-setting and the role of independent advisory bodies **[D]**.

Averchenkova is now advising on the development of a Paris-aligned EU-level climate law, a draft of which was published in March 2020. GRI research has been used since 2017 to support a concerted campaign (led by the European Climate Foundation) advocating for such a law. GRI research and expertise - building on **[3]** - was particularly used to establish the law's merits and identify the features it should include. This helped decision-makers in the European Commission and key member states - including Belgium, Denmark, Germany, Ireland, Netherlands, Portugal, and Spain - to draft the new law **[E]**.

Promoting climate finance and sustainable infrastructure

GRI research (e.g. **[4]** and **[5]**) has highlighted the crucial importance of getting long-term infrastructure investments right, since these lock in emissions and vulnerability profiles. In developing countries, where the provision of climate finance is most critical, infrastructure is often financed by multilateral development banks (MDBs). The influence of GRI thinking is evident in references to its research in new guidance on finance for sustainable infrastructure by organisations such as the Asian Infrastructure Investment Bank (AIIB), Inter-American Development Bank (IADB), and New Development Bank (NDB) **[F]**. The latter alone (which is advised by Stern) has invested nearly USD16 billion in sustainable infrastructure and related projects since 2016. The IADB is implementing the UK Sustainable Infrastructure Programme (SIP), which will accelerate sustainable infrastructure development in Latin American and the Caribbean and catalyse private sector investment for the implementation of the Paris Agreement. The Department for Business Energy and Industrial Strategy (BEIS) cited **[4]** in the SIP business case **[G]**.

Informing the UK's response to climate change

GRI research has also influenced climate policy in the UK, including in terms of climate ambition and approach to climate resilience. The UK addresses mitigation through five-year "carbon budgets" (which impose a statutory cap on greenhouse gas emissions) and adaptation via five-yearly risk assessments and national adaptation programmes. GRI research (e.g. **[5]** and **[7]**) has informed both these processes. The principal mechanisms for this impact have been Fankhauser's membership (2008-16) of the Committee on Climate Change (CCC; the UK Government's statutory advisor on climate change) and Stern's high-level connections as a former Second Permanent Secretary to the Treasury. More broadly,

GRI engages regularly with officials in relevant departments - chiefly HM Treasury, BEIS, and the Department for Environment, Food and Rural Affairs - including via responses to parliamentary enquiries.

Through these channels, GRI research has had a tangible impact on UK climate policy before and after Paris. On mitigation, the work has helped to shape: (i) the UK's statutory carbon targets for 2008-32 (the first five carbon budgets); and (ii) the 2019 adoption of a "net zero" emissions target. Research including **[3]** and **[6]** was influential in locating UK action in the international context and assuaging concerns about its effect on competitiveness. The GRI's influence on the work of the CCC is attested by its Chair, Rt Hon. John Gummer, Lord Deben, who says of the GRI:

> *"The quality of its work and its intellectual capacity has helped our thinking in some of the most complex areas that we cover. Its name has always been a guarantee of rigour and objectivity."* **[A**, p. 14**]**

GRI work has also helped define the UK's methodological approach to adaptation planning and climate change risk assessment **[H]**. The analytical method used in the 2017 Climate Change Risk Assessment (CCRA2), a key statutory planning document, directly reflects GRI research findings on identifying adaptation priorities (**[6]**) and the importance of the private sector to climate resilience (**[7]**). The method is now carried over into CCRA3. Fankhauser and Surminski were directly involved in the planning and execution of CCRA2 and CCRA3. The risk assessments, as shaped by GRI work, will determine the government's approach to adaptation planning in the UK over the next five years.

5. Sources to corroborate the impact (indicative maximum of ten references)

[A] Statements corroborating impacts of GRI research on global narrative, and on work of the OECD, IPU, and CCC excerpted from "The Grantham Research Institute at 10: Analysis, engagement, leadership". See pp. 3-4, p. 9, and p. 14.

[B] For David Cameron's speech on 30 November 2015, referring to "*75 countries that already have…climate change legislation*", see transcript provided by Department of Energy & Climate Change, "PM speech to the COP21 summit in Paris", published 1 December 2015.

[C] Examples of IPU co-branded policy briefs include the 2015, 2017, and 2018 updates of "Global Trends in Climate Change Legislation".

[D] NZ Productivity Commission report, "Low-emissions Economy", extensively cites GRI work including **[1]**. Input from Fankhauser is also acknowledged in the Office of the Parliamentary Commissioner for the Environment's March 2018 report, "Zero Carbon Act for New Zealand" (see "Acknowledgments" on p. 2). Thank you letters from the NZ Minister for Climate Change and the Chair of the Environmental Committee (Parliament) acknowledge GRI's input into the legal process.

[E] Letter of appreciation from the European Climate Foundation on GRI's contribution to the campaign for an EU-wide climate law.

[F] AIIB (2017), "Energy Sector Strategy: Sustainable Energy for Asia", p. 18 for reference to **[4]**; IADB (2018), "What Is Sustainable Infrastructure? A Framework to Guide Sustainability Across the Project Cycle", (p. 10); and NDB, "General Strategy 2017-2021" (p. 9) cite outputs from the wider body of GRI research.

[G] For use of GRI research by BEIS see their business case for SIP Latin America (p. 9).

[H] For use of GRI research by the UK Committee of Climate Change see "Risk Assessment 2, Technical Report, Chapter 2", which cites **[5]** (pp. 4 and 19-20) as well as referencing other research from the broader body of GRI work.