Tackling climate change requires urgent action to reduce greenhouse gas (GHG) emissions. To understand the scale of the task at hand, and measure progress, emissions must first be accounted for, and reported on accordingly. Emissions accounting is often defined by country borders. However, this approach does not address the full contribution of a country’s economic activity to GHG emissions and might therefore reduce the ambition of influential public and private sector actors to stimulate climate action across their entire sphere of influence.

Several approaches exist to measure emissions. **Territorial emissions** only include emissions of activities within a country’s border. A **production emissions** approach measures emissions from all industries owned by a country’s companies or related activities, anywhere in the world. **Consumption accounting** provides yet a different perspective. It identifies the emissions that relate to national consumption, including emissions that occur elsewhere but excluding emissions generated for exported products. Finally, emissions accounting in the corporate world is often based on a division into **three scopes**: Scope 1 measures direct emissions from facilities owned by a corporation; Scope 2 measures indirect emissions from purchased electricity and heat; and Scope 3 measures any other indirect emissions in the production, distribution, and use of products.

There is increasing interest from a range of stakeholders into alternative accounting frameworks, particularly those more fully recognizing the entire influence sphere of actors, be it countries or businesses.

This interdisciplinary PhD project will investigate the quantitative and policy aspects of estimating and applying alternative emission accounting frameworks in climate and environmental policy in the context of a net zero transition.

Starting from a quantitative assessment of available data sets, the project will investigate alternative workable emissions accounting approaches and assess their relative merits, limitations and use options. Subsequently, there will be an opportunity to take the project into a further analytical direction, building and improving scientific tools for emissions accounting and working towards establishing a new set of accounting standards of use to a range of stakeholders. Alternately, there is also an opportunity to explore the concept of emissions responsibility more deeply in the context of policy making, by investigating how the implications of alternative accounting frameworks can be integrated in policy and have influence.
What is measured and monitored has a profound connection with stakeholders’ priorities for influence and action, including how equity and fairness of targets across countries is being perceived. Therefore, the project will include stakeholder interaction with the UK Committee on Climate Change, the UK Department for Business Energy and Industrial Strategy and businesses associations.

For more information on how to apply to us please visit: https://www.imperial.ac.uk/grantham/education