



In Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

Susan Spierre

Will defend her prospectus

Determining an Equitable Approach to Global Climate Change Policy

The United Nation's Framework Convention on Climate Change (UNFCCC) recognizes development as the priority for carbon dioxide (CO₂) allocation. However, a review of climate policy proposals reveals a paucity of consideration to how an ethic of development equity might be advanced under a global mitigation system. If the relationship between CO₂ mitigation policies and human development is not clarified before the details of Kyoto's successor are determined, it could be detrimental to global development goals. Therefore, this research seeks to explain the role that CO₂ plays in development, and if significant, how that role may be integrated into mitigation policy. The principle hypotheses that motivate this research are: 1) Nations that are primarily carbon exporters experience greater improvement in human development over time compared to countries that are primarily carbon-importers, 2) The diminishing returns to the United Nation's Human Development Index (HDI) with respect to energy and CO₂ emissions are independent of the normalization method employed, 3) As cooperation costs increase among groups, the likelihood of collective action decreases, and 4) Current market-based mitigation methods will result in perverse human development outcomes. Each hypothesis will involve a unique investigative method. To test the first, changes in HDI levels will be compared with trade-corrected emissions accounting data for many countries. The second will involve studying the extent to which the saturation effect is exhibited as nations progress from low to high per capita CO₂ emission status over time, under different normalization approaches. The third hypothesis will be assessed by modeling climate change as a non-cooperative game theory problem and examining the effect of increasing cooperation costs to players (located in developed and developing countries) to game outcomes. Finally, if the previous hypotheses are determined accurate, I will propose a more informed mitigation system geared to prevent the unintended development consequences.

Tuesday, July, 24th, 2012
10:00 AM
Wrigley Hall, Room 481

Faculty, students, and the general public are invited.

Supervisory Committee: Dr. Thomas P. Seager, Dr. Braden Allenby,
and Dr. Sonja Klinsky