

Environmental Policy Field Exam

August 13-15, 2018

Exam Administration

The exam may be taken in the venue of your choice. Kelli Jacobs will e-mail the exam to you Monday, August 13 at 9:00 am. Your answers must be returned via an email attachment to Kelli Jacobs by 5:00 PM on Wednesday, August 15.

Instructions

- Your exam and responses should remain anonymous, identified only by a student number that Kelli will provide.
- Answer each of the three questions below. Your answers must be your own work. Show all calculations.
- Each question will be equally weighted in the evaluation.
- Answers should be carefully composed for clarity and brevity. Each answer should be no more than 5000 words, not including figures and tables.
- You can compose your answers on a laptop or computer of your choice. You can refer to books, articles, and reports during the course of the exam (electronic or hardcopy).
- You may also refer to electronic note files/or a composed annotated bibliography.
- Do not copy and paste text from previously composed answers.
- Within your answers, you may include parenthetical citations (e.g., Coase 1960), and then turn in a complete list of citations (e.g., Coase, R. 1960. The problem of social cost. *Journal of Law and Economics* 3: 1-44.) by email to Kelli by Thursday, August 16 by 5:00 PM.
- Be sure to provide citations for all major concepts and data. Where you are using other author's phrases or excerpts from their work, be sure to place the borrowed material in quotes with an appropriate citation.

Question 1.

Assume that you have been engaged to advise the Government of Sri Lanka (GoSL) on options to address their greenhouse gas emissions. Your client, Ms. Kinkini Gunathilaka, at the Ministry of Mahawelli Development and Environment (MMDE) has asked you to prepare an overview of their options for policy instruments that could be used to mitigate emissions. In your discussions with her, you note a few things:

- She has a basic understanding of welfare economics and markets;
- While she is familiar with the idea of carbon pricing, she (1) does not seem to grasp the difference between taxes and allowances (2) the limitations inherent in each or (3) the notion of complementary or alternative policy instruments;
- When you ask about labeling, she does not seem to grasp what relation that would have to emissions reductions; and
- When you ask what policy instruments they are already using, she mentions offset programs, solar photovoltaic goals, research programs, and forestry.

Your assignment is to develop a short report (less than 5,000 words) summarizing how Ms. Gunathilaka can best understand the policy instrument options and decisions the GoSL faces as it moves forward with plans to meet its emissions targets under the NDC for the Paris Agreement.

While your report should provide a general overview of the broad policy instrument issues involved, it should also be adapted to the specific context of Sri Lanka to the extent the above background information allows.

You are provided the information below about the Sri Lanka context.

Background

Sri Lanka is a rapidly growing lower middle-income country with a total population of 21.0 million people and per capita income of USD 3,924 in 2015. Following a 30-year civil war that ended in 2009, Sri Lanka is considered to be, in many respects, a development success story. For example, growth has averaged over 6 % per year in the past decade and poverty rates have declined dramatically from 22% in 2002 to 9% in 2010¹².

Sri Lanka's GHG emission in 2012 was approximately 0.78 tCO₂ per capita, far below the world average value of 4.44. According to Sri Lanka's Second National

¹ The context information is modified from the recent World Bank Terms of Reference (ToR) for Consulting Services "*Exploring the role of carbon-pricing instruments (CPIs) in decarbonizing the power and transport sectors in Sri Lanka*" This assignment is loosely based on that ToR.

² For more information, please refer to the World Bank's Overview of Sri Lanka:
<http://www.worldbank.org/en/country/srilanka/overview>

Communication on Climate Change Submissions to UNFCCC (SNC), the energy sector (including electric power and transportation), which accounted for 61.4% of total GHG emissions in 2000, represented the largest share of total national GHG emissions. The agriculture sector was the second highest GHG emitter, representing 25% of total emissions. This was followed by the waste sector (10.8%) and the industry sector (2.6%).

Sri Lanka has set the following GHG emission reduction targets under its Nationally Determined Contribution (NDC) for the Paris Agreement: (a) By 2030, reduce GHG emissions in the energy sector against BAU scenario by 4% unconditionally and an additional 16% conditionally; and (b) by 2030, reduce GHG emissions against BAU scenario by 10% in other sectors by 3% unconditionally and an additional 7% conditionally.

Sri Lanka's power sector

The power sector is a critical component of any future climate policy for Sri Lanka. According to the Sri Lanka Sustainable Energy Authority (SLSEA), Sri Lanka's GHG emissions for the energy sector (both energy and end-use sector) nearly doubled from 5,447 in 1994 to 10,430 GgCO_{2e} in 2000. Within the energy sector, electricity generation accounted for 26.6% of emissions. Furthermore, Sri Lanka relies entirely on imports to meet its fossil fuel demand; and the cost incurred from fossil fuel imports are significant, covering approximately 50% of Sri Lanka's export income. Mitigation efforts in the power sector therefore has significant development benefits for the country by reducing its reliance on fossil fuel imports and enhancing the country's fiscal resilience.

Sri Lanka has already experimented with economic instruments for regulating the power sector, including a feed-in tariff for small-scale renewable power plants, a scaled-up crediting program under development with the Carbon Partnership Facility (CPF), a NAMA framework for the energy generation and end-use sectors, and several small scale domestic offset projects in the Sri Lanka Carbon Crediting Scheme (SLCCS). In addition, most of Sri Lanka's 20 registered CDM projects are in the power sector. Nonetheless, the overall impact of these measures has been relatively small so far in comparison to the future power needs of Sri Lanka and the planned expansion of renewable power.

The current draft of the Long-Term Generation Expansion Plan (LTGEP) includes a proposal for the total addition of renewable energy within in the next 20 years of 1,205 MW of wind power, 1,232 MW of Solar power, 200 MW of Mini-Hydro power and 80 MW of Biomass Power. This would be a 640% increase from the current non-conventional renewable energy capacity of 422 MW. Sri Lanka government is in need to develop new policy instruments and identify sources of financing to expand the renewable power sector at this rate.

Sri Lanka's transport sector

According to Sri Lanka's SNC, emissions from the transport sub-sector represented 35% of Sri Lanka's net total CO₂ equivalent emissions, and almost half of emissions from the energy sector in the year 2000. The transport sector in Sri Lanka (both passenger and freight) is predominantly dependent on road transportation. Therefore, gasoline and diesel are the two major sources of energy to meet the transport demand. Due to a lower rate of rail utilization, efficiency in the energy use for transport demand is lower than expected. Given the expected economic growth and growth rate of private small passenger vehicles like cars, 2-wheeler and 3-wheelers in the country, the modal share is expected to shift drastically towards private vehicle driven passenger-km compared to public vehicle.

Question 2.

Over the past half-century, the United States and many other countries have made immense progress to improve environmental quality. Through regulations, market-based strategies, and technological innovations, emissions of air and water pollutants have been reduced, the use of dangerous chemicals have been restricted, and the disposal of solid and hazardous waste has become better managed. Of course, problems remain (e.g., global climate change, nonpoint source pollution from agriculture, etc.), but the progress that has been made is undoubtedly significant.

Despite these achievements, advocates for “environmental justice” argue that large segments of society have not benefited from these environmental improvements. Please assess the merits of this argument. Is this argument correct, exaggerated, or somewhere in between?

Your response should be deeply grounded in the scholarly literature (e.g., economics, political science, sociology), and ***not*** simply rely upon your intuition and inductive logic. ***Note: This question can be answered in the framework of domestic environmental policy or international environmental policy. Choose one.***

A complete answer will address the following:

First, what are the origins of the environmental justice movement, and what are the key principles its supporter advocate?

Second, what is the nature of the empirical evidence on disparities in environmental outcomes?

Third, what types of policy efforts have been made to account for equity issues in environmental policy, and what can be said about their effectiveness?

And, finally, what are some of the remaining questions in the environmental justice debate that require scholarly analysis? What types of evidence and research approaches would advance this area of study?

Question 3.

Please explain the role that institutional analysis, using Elinor Ostrom's IAD or SES frameworks (or some combination or variation of them), might play as part of your field research in Africa. What kind of information would you need to gather to engage in such an analysis? What "action situations" would be focal for your research? How would you go about organizing and analyzing the information? And what benefits would you expect an institutional analysis, based on that information, to provide for your research?