

ENVS 84
SEMINAR ON ENVIRONMENTAL ISSUES OF SOUTHERN AFRICA

Prof. Bill D. Roebuck
2007

**Environmental Health Challenges for Humans and other
Animals in Southern Africa**

Introduction

For both humans and other animal species, health (i.e., well-being, or the absence of disease) is a fundamental asset, but highly uncertain. Compared to our common experiences largely in North America, southern Africa poses some unique challenges to health. For humans, these challenges might be summarized as those nature challenges of geography and the usual weather. They might include relatively dry climates with strongly seasonal rains and intense sunlight. Certainly, the current and predicted climate changes will modulate these challenges. Health challenges resulting from the sheer numbers of humans living in relative poverty include diseases of congregation. For example, infectious diseases such as measles and polio are only transmitted from human-to-human and then most effectively only when hunter-gathering societies began to assemble into permanent settlements. Interestingly, southern Africa is urbanizing rapidly. Human enterprises have given rise to other diseases such as those associated with agriculture (e.g., specific nutritional deficiencies, pesticides, biological dusts and pollens), mining (silicosis, toxic minerals, excess heat, and radiation), and transportation (e.g., leaded gasoline and combustion pollutants). Food, water and air are all vehicles for exposure to natural and human-made toxic chemical that at appropriate doses can cause disease. Additionally, our "modern" and changing lifestyle exposes humans to additional known causes of diseases such as tobacco, recreational sun tanning, and residing in confined indoor spaces predispose to diseases.

Animals other than humans are exposed to many of the same environmental conditions. Examples would include pollutants from mining operations and pesticides. And like humans, the environment of most other animals has been drastically modified by human activities. Agricultural fencing is certainly a major example of modification of and restricted access to habitat. The close proximity and competition for resources between humans and other animals has resulted in infectious diseases moving between these hosts. Many populations of wild animals have been forced to live in remote and less desirable habitat; thus, exposing them to environmental stresses for food and water, invasive plants, and even transportation infrastructure and traffic.

The ENVS 84 will focus upon health from environmental factors and especially from environmental changes brought by rapid modernization in southern Africa. This term some lecturers will focus on environmental health and many more will have smaller components related to environmental health. As you travel in urban and rural Africa, look about you for health concerns present in your neighborhoods, in Hatfield, seen from the bus taking you to field

sites, and in the field sites themselves. Question as many people as you can. Begin this exploration with the members of your home-stay family.

Assignment

1. Each student will write a paper of about 3000 words/10 pages (exclusive of illustrations, figures and tables, and references) on one very focused issue concerning environmental health in the context of southern Africa.
2. The one area of which you **cannot** directly write about is that of HIV infection and the direct impact of AIDS on health in southern Africa. Rightfully or wrongfully, HIV/AIDS receives overwhelming attention; however, there are other health issues in southern Africa. This “conference” will focus on these other issues. HIV/AIDS impacts these other health area either directly or indirectly. A reader is being provided to cover this one major area and to “properly” allow us to exclude it from our “conference.”
3. It is expected that these papers will be very specific and highly focused. For example, bovine tuberculosis can infect both humans and other wildlife and has significant economic ramifications for exportation of domestic beef. Uranium mining is associated with risks of radiation, rock dust and mineral pollution of streams and irrigation waters. I could imagine several papers being written on each of these issues. Several titles come to mind: “Bovine tuberculosis control measures,” “Bovine tuberculosis in lions of Kruger National Park,” “Silicosis risk from hard rock mining,” “Acid mine drainage from coal operations in Witbank,” “Interactions between cigarette smoking and radon in miners,” and “Forced migration by rotation of watering points over a large geographic area.” Diseases can be transmitted via contaminated water sources, but the simple container that the women or children carry to the community well and then back to the house may be contaminated and serve as the source of disease organisms. A paper discussing this topic might be entitled “Household water containers act as reservoirs of disease organisms.” Topics largely in the scientific, clinical/medical, social, or political arenas are fair game so long as they are scholarly. There are literally hundreds of topics, but the important point is not to be too broad. I want you to become a creditable “authority” in one area. You need to have a broad and general understanding of major environmental health issues in southern Africa, but to provide meaningful solutions, you must be very specific and focused.
4. Collectively, the group must craft a suitably written introduction and conclusion to the collection of your individual papers. The introduction will be easy for everyone can recognize the issues, but the conclusion to your collected papers will be exceedingly hard for specific conclusions or “ways forward” are needed that reflect the realities and uncertainties of health in southern Africa.
5. We will hold a “conference” where the papers will be presented formally and briefly discussed.

Written Format

1. The proceedings from many scholarly meetings are published in scholarly journals and we will pretend that the results of our conference entitled “Environmental Health

Challenges for Humans and other Animals in Southern Africa -2007" are to be published in such a journal.

2. The *Bulletin of the World Health Organization* could be a suitable venue for papers issued from said conference. I will provide you with the "Guidelines for contributors" and an example of an article from a recent issue of the *Bulletin of the WHO*.

Course Plan (tentative dates are provided recognizing that they may need to be adjusted)

1. While in Africa, be observant and ask questions. As you travel about Africa or listen to lectures in Pretoria, I request that you discuss health issues with your African lecturers. Prior to Prof. Roebuck's arrival in Africa, time will be provided between lectures for you to bring your library research.
2. During the 2 weeks from 18 October until 27 October, we will discuss this ENVS 84 assignment and you will have additional time for library work.
3. A reader is provided to aid you in this exceedingly broad area.
4. On **18 October**, we will discuss this assignment and consider our task. We will also consider the range of literature that each of you brought to Africa.
5. On **24 October**, submit in writing an informative title and two questions that your paper will address and 3 key literature citations. We will meet as a group to consider the preliminary idea for each topic and to focus the topic. In approximately 5 to 10 minutes, each student will discuss the problem they wish to explore. In the remaining 5 to 10 minutes, the group will help the presenter with their topic.
6. All of **25 October** will be devoted to library work and further focusing of your topic. By 4pm on **26 October**, I want a very rough draft of your paper.
7. When time permits in Namibia, the group must begin to organize our conference on "Environmental Health Challenges for Humans and other Animals in Southern Africa" This will entail crafting an introductory section to both the oral presentations and written proceedings as well as concluding statements. The group should also begin to decide upon the order of the oral presentation of these papers.
8. While in Namibia, we can have one or two meetings to discuss specific topics, progress, and ideas further. You certainly should plan to bring work with you for this assignment. You should continue to question any speakers regarding environmental health issues. We might have access to new literature at the Gobabeb Desert Research Station.
9. On **16 November**, you should start preparation of a final paper. On **20 November**, you must submit a draft of your paper to two other "conferees" for their critical evaluation. These "critical reviews" will be returned to both you and me within 24 hours.
10. On **22 November**, we will have presentations of all papers including the Introduction and Conclusion (these two sections will likely not be polished). I expect very crisp presentations of 8 to 10 minutes each. We will entertain only 5 minutes of discussion for each paper. This will be fairly formal with half the papers presented in the morning and the other half in the afternoon.
11. Final drafts of the individual papers, as well as the class's finalized Introduction and Conclusion sections are due by **4:00 pm on 23 November**.

Prof. Roebuck's thoughts based upon a previous ENVS 84 assignment

1. Warning to each student:

- The library at the University of Pretoria will be unfamiliar and different: not as electronic as Dartmouth and do not expect as much reference help.
- There is no free green printing...must expect to pay for some printing.
- Computer access on campus is different: less access, less access to the web, expect to e-mail and pay for it down town, printing is less easy and there is less recycling.
- The library does not have a book loan program for Dartmouth students so you might have to take notes (!) in the library....old-fashioned (maybe?), but it works.

2. Regarding grading:

<u>Course Requirements</u>	<u>Points</u>
Preliminary draft:	15
Critiques of 2 other papers:	10
Your final paper:	50
Presentation/handling of questions:	5
Conference Introduction/Conclusions:	10
<u>Constructive group discussion:</u>	<u>10</u>
Total Points:	100

3. Details regarding writing paper

- I will guide you through this process, but I will not read drafts and correct them. Expect to work cooperatively with fellow students to accomplish this task of constructive criticism.
- In your acknowledgements sections, thank those very few who significantly helped.
- By **4 pm on 23 November 2007**, I expect a hard copy of the entire document (i.e., Introduction, the individual papers, and Conclusions) as well as an electronic copy.

15 August 2007