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Bioethics and the Environment

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Humanity has historically and consistently questioned its role and responsibility to the physical environment, and the biological life forms within it. Human interaction with the environment is characterized and shaped by our economic and social activities, which are manifest in the built environment. Globalization is driving the analysis of human behaviors on spatial and temporal scales, organizational structures within and between the physical and biological environments and the subsequent impacts on human life and endeavors. We now have a choice between continuing the predominant practice of interacting with the environment based on preconceived knowledge (epistemology-based ethics) or implementing the practice of listening to and learning from the environment (ethics-based epistemology). This public lecture will present an overview of the relationship between bio- and environmental ethics and a conceptual framework for the integration of these philosophies in the engagement and resolution of environmental and human health issues confronting humanity in the 21st century.
Ethical considerations in the use of the Plant Growth Regulator Benzylaminopurine in Graduate Research

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Plant growth regulators (PGRs) are natural or synthetic compounds that are applied directly to a target plant to alter its life processes or its structure to improve quality, increase yields, or facilitate harvesting. Benzylaminopurine (BAP), an N6 substituted synthetic cytokinin, was applied as a foliar spray to pigeon pea plants in an effort to increase yield. Available fact sheets stated that BAP is non-toxic and non-bio-accumulating but there were issues arising over the use of this PGR. Benzene (a potentially carcinogenic molecule) makes up part of the BAP molecule. Also there is a similarity to the DNA fraction adenine. Additionally, the research site was in close proximity to that of other researchers and there was danger of aerial drift and contamination of other research. Greenhouse and garden workers may have also unknowingly gotten into contact with the PGR. There were also consumer concerns that BAP could be retained in seeds.

The onus was therefore on the researcher to inform the greenhouse and garden staff and other researchers as to the nature of the chemical being used and advised precautions to be taken when handling plants. Also precautions were taken to prevent aerial drift when BAP was applied. It was also the responsibility of the researcher to determine if BAP left residues in seeds of pigeon pea and fully disclose the possibility of BAP residues in seeds to the scientific and wider community. The bioethical issues raised in this study shall be discussed using the utilitarian approach.
Bioethical issues associated with Rodent Control in Trinidad

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In Trinidad and Tobago, rodent control responsibilities lie with the Public Health Department in the Ministry of Local Government. The main rodent unit is located at the Port of Spain City Corporation. All other rodent ‘units’ or rodent gangs (as they are commonly referred to), were formed after 1990 following the introduction of the regional corporation system. Rodent control should be an important public health issue, as rodents are the main animals responsible for transmitting diseases such as Leptospirosis.

In this paper, the importance of rodent control as a public health issue in Trinidad was examined. There were many factors that impacted on the rodent unit’s ability to supply proper rodent control strategies for the different regional corporations. These factors include a lack of manpower, lack of funding to buy resources such as poison, lack of laws with regards to rodent control, lack of implementation of existing laws, and lack of educational programs for the general public.

The citizens of Trinidad are therefore being disadvantaged as a result of these limiting factors: their general well-being for one, is threatened, as they do not have the option of proper rodent control. Whilst private rodent control companies exist, the public has a right to free rodent control services provided by the Local Government. Based on Rawls’ concept of justice and fairness, the first principle which states ‘that each person should have as much liberty as is consistent with other people having the same amount of liberty’, all citizens have the basic right to free and efficient rodent control services.
Air pollution caused by the Trinidad Cement Plant: Profit or Loss of Health

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Air pollution is truly a global public health emergency with one fifth of humanity living in areas where the air is not fit to breathe. In the Claxton Bay area where the Trinidad Cement Plant is located, there is a significant pollution due to large quantities of gas emissions and dust. Although their gas emissions diffuse, they do not reach the upper levels of the atmosphere to be dispersed/transported by the prevailing winds. In addition dust emissions in the surrounding environment greatly influence the surrounding population’s health. Gases emitted from the stack of these plants are Carbon dioxide (CO2), Sulphur dioxide (SO2), and Nitrous oxides (NOX), synthetic compounds and particulate matter. The oxides of nitrogen and sulphur are associated with respiratory health effects especially in individuals with a particular susceptibility.

Studies conducted on chronic exposure to cement dust have demonstrated an increase in the prevalence of chronic respiratory symptoms and a reduction of ventilatory capacity. There are different categories of health effects. First, there can be some temporary damage to the respiratory system which will disappear rapidly when the person is no longer exposed to dust. Second, there can be the occurrence of insidious damage to the respiratory system such as bronchitis or occupational asthma after long-term exposure to dust. The reaction is not as explosive as an allergic reaction, but has various symptoms such as coughing, shortness of breath, or a reduction of pulmonary capacity.

The Bioethical questions which arise include: should the Cement Plant administration accept liability for the impact of its pollutants on the surrounding populations? Do they have any responsibility to the affected population? What measures have they put in place to reduce the emission of these pollutants? What role should the Environmental Management Authority play?
Asbestos abatement in Succabba, St. Catherine: A case of action—oriented research

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Whereas the adverse health effects of occupational and environmental exposures to asbestos in developed countries have been well documented and for the most part, effectively controlled, limited attention has been accorded to this very important issue in developing countries.1, 2 . Despite the numerous and diverse reasons for this, the resultant fact is that such workers and residents exist under precarious working and/or living conditions under the threat of asbestos-related diseases.3 Recognising the multi-factoral nature of health determinants, important questions of equity and the protection of such vulnerable populations, raise important ethical issues for consideration. 4

This paper seeks to demonstrate the effective use of research by the Chemistry Department of the UWI, Mona, to characterize environmental risk of asbestos exposure in the damp asbestos contaminated squatter community of Succabba, St. Catherine, Jamaica. The paper will also examine the mobilization of the community undertaken with funding from the Environmental Foundation of Jamaica (EFJ), to clean up the pollution from the squatter community and regularize their land tenure.


Abstracts

Ethics and bioethics. Change in morality
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The paper is part of on-going methodological work, which supposes an integral approach to human reality. The present coordination and planning stage will be followed in Cuba by succeeding stages still under design.

The approach proposes a periodization of human history according to which we are bound to a radical change in morality. This approach is based on current advances in neuroscience, axiology, behavioral sciences, law, psychology and other sciences, achieved in the last decades. It is aimed at providing an integral view of human reality from which useful proposals could be derived in the specific Cuban conditions, with health and education systems allowing the targeting of higher purposes related to the integral realization of the human individual.

Although the social, health and education systems adopted in Cuba have been taken as starting points in this approach, it does not necessarily correspond to an ideologized view, as it mirrors human beings in the most open and faithful way described by established science.

At the beginning of the current period, we humans, as any other species, have instinctively gone after survival. Moved by fear and diverse instinctive reaction mechanisms, but endowed with singular neuronal structures, we grouped ourselves in societies organized with the aim of emergently solving the problems we were facing. That is how we learned to favor ourselves in the modification of our environments. In the knowledge process implied by such an approach we have started spotting the limits to the exploitation of nature, trespassed which are a certain risk to survival itself, as well as the serious imperfections of the extant social structures. But our most challenging exploration is in a very peculiar frontier of knowledge –the knowledge of human nature itself.

According to this view, the current period has extended from prehistory and will cover the total use of nature in a single direction – with the help of the S&T Revolution – in search of results allegedly and locally fruitful, although with

Promoting Public Health Standards in Mobilizing Community Response: 2005 flood experiences on the East Coast Demerara, Guyana
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Following on the disastrous floods of January 2005, religious and community leaders from the villages between Plaisance to Industry, East Coast Demerara, Guyana, got together at a church in Plaisance – the only religious building above water at the time - to plan a ‘clean-up campaign’.

The aims of the campaign were:

a) Ensure the clean-up campaign was effective and thorough;
b) Ensure the clean-up was a positive experience in terms of community building, and
c) In disseminating a guide for conduct, to ensure that the campaign was carried out in a manner that respected the dignity and rights of affected persons.

A schedule of actions was undertaken, including:

- Gather information on needs related to clean-up campaign.
- Provide people with basic information related to health hazards.
- Provide information with regard to quantities and types of materials needed for clean-up.
- Provide materials to families who cannot afford adequate clean-up materials.
- Provide assistance to shut-ins and others who cannot clean their own premises.
- Address the need to clean-up public areas.

Guiding Principles were produced for all actors engaged in local disaster relief activities.

The experiences of these communities were duplicated in a number of other affected communities along the East Coast, who later came together and shared the key ‘Ten Lessons Learnt’ in confronting the floods situation.

Most of the community leaders have since stayed together and continue to advocate for better village and regional sanitation standards in garbage collection/disposal and safe water.
uncertain perspectives. Human social constructions have been all along a result of immediacy rather than prevision. In the next one, the human species will achieve survival in a highly self-dependent mode.

This prolonged historical lapse will be followed by a period born from the growing scientifically bolstered mastering of the new human reality. It will feature the coherent construction of horizontal, species-centered, and inclusive societies, with an unbounded holistic cultural development, and a controlled technological development aimed at its ecological sustainability. The optimistic alternative to this future is the extinction of the human species resulting from the current ecocide of the planet. The pessimistic one is its self-annihilation in war.

Bioethical Standards: The Jamaican environment and some ethical concerns

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The scope of bioethical debate regarding justice in health and care for persons should include issues such as air pollution, water quality, occupational hazards, safe housing, food and drug safety, pest control, disaster preparedness, literacy, and other environmental factors that affect or can cause differences in health. However, not all societies have sufficient resources to address all of these environmental factors simultaneously, and so each society must set priorities in regard to policy formation in these varied areas.

In recent years, the field of environmental ethics has contributed much to the understanding of our general duties and values to nature, animals and plants, populations, and ecosystems. Further, a close relationship has been shown to exist between the protection of the environment and social justice.

In Jamaica, atmospheric pollution from burning sugarcane for harvesting, deforestation, soil erosion, and inadequate protection of streams and rivers from squatters, are some of the specific environmental issues that the country faces. In addition, in recent years, there has been a rapid increase in the construction of “mega-hotels” along the north coast of the island. The thousands of trees destroyed to facilitate these construction sites cannot be re-planted, and the land used cannot be re-claimed in the foreseeable future.

This paper will analyze some of the ethical challenges that some of these issues present for sustainable development for the Jamaican populace.
Dengue control and its associated Bioethical issues in Trinidad, West Indies

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Dengue Fever and Dengue haemorrhagic fever are the primary cause of hospitalization in children in South East Asia where the seroprevalence rate is 96% in the adult population whereas in Trinidad the seroprevalence rate is 92% but the associated complications in the infant populations have not been observed to date. The 2002, 2003 and 2008 outbreaks of dengue fever and its haemorrhagic manifestations clearly demonstrate that the Ministry of Health surveillance system is not sensitive to the risk associated to the Trinidad and Tobago population given the high seroprevalence rates.

This lack of sensitivity in the Dengue surveillance system and in their response are evaluated using the utilitarian bioethical approach which include Non-maleficence (do no harm), Justice (equitable distribution of benefits and burdens etc), Beneficence (promote good) and Utility (make best use of overall resources). This suggests that there is a moral/ethical dilemma which shall be explored between knowing what is to be done and taking action to prevent high morbidity and mortality rates among the infant populations in Trinidad and Tobago.

Bioethics as added value in an environmental health programme for medical students

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Introduction
Approximately 25% of the world’s population suffers from ill-health due to preventable environmental factors. At the University of the West Indies, Jamaica emphasis is placed on exposing medical students to a range of environmental health determinants. This paper describes how this programme brings medical students face to face with bioethical issues and considerations related to the environment.

The curriculum
During the first year of training, students receive a 30-hour long course which addresses the role of the environment as a major determinant of health. Risk factors, environmental hazards and disease occurrence in diverse occupational and environmental settings are highlighted. In the fourth year, select issues are further emphasized inclusive of field visits to:
1. Wastewater and water treatment plants
2. Food Handling Establishments
3. The National Solid Waste Management Authority and the main solid waste disposal site in Jamaica
4. A major abattoir and a poultry processing facility

Apart from being exposed to different aspects of technology, environmental health hazards, prevention and control strategies, students also develop an appreciation of how socioeconomic, demographic, and political factors impact environmental health and ultimately people’s lives. The limited availability of appropriate and adequate technological solutions raises realistic ethical dilemmas for reflection and discussion.

Conclusion
The structure of this undergraduate programme in environmental health and its mode of delivery provides a framework for real life ethical consideration of the contribution of the environment to disease causation and the significance of equity considerations in the implementation of public health strategies to address these issues.
Medical students’ reflections on taking a spiritual history

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Purpose
To describe the response of medical students to a structured special study module (SSM) on “taking a spiritual history” offered during the first three years of medical school at the University of the West Indies, Jamaica.

Methods
Forty students took part in this SSM to date. The aim of the 6 week part-time module was to develop knowledge and skills on the assessment of spiritual health. Students took two in-depth patient histories using a structured spiritual assessment tool. Their written reflections were reviewed and collated.

Results
Key reflections were as follows:
“Understanding of spiritual health has broadened beyond Christianity. Opportunity to look at the person behind the illness and to connect. Most challenging was determining what spiritual health meant to me. A stimulating experience for me as my journey through medical school is a spiritual one. I see the benefits of incorporating spiritual aspects of medicine into my history. Will undoubtedly be listed among my most meaningful undertakings in medical school”.

Overall students have reported positive feedback on the experience and there has been a growing demand for this SSM.

Conclusions
The exposure to spiritual history taking is seen as a positive one by students with perceived benefits to both patients and students. This exercise should be integrated into the general teaching of history taking in the medical school.

The bioethical dilemmas presented in a retrospective study on Helicobacter pylori epidemiology in Trinidad (1994-2003)

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This study aimed to address the issue of doctor-patient confidentiality since, the names and addresses of patients infected with Helicobacter pylori were obtained without their consent. No patients were actually contacted during this retrospective study. This information was used to develop geographical information systems (GIS) maps to facilitate analysis of the associations between the environment, infection and location. In addition, these maps helped to document the dissemination of Helicobacter pylori infection, identify infection clusters, and describe the demographic characteristics of those areas.

The Four Principle approach or Principism, was applied to determine if the breach was ethical or not. The Four Principle approach used:
1. patient autonomy – the right to one’s own decisions and beliefs
2. beneficence – the promotion of good
3. non-malificence - refrain from harming people
4. justice – the fair distribution of burdens and benefits.

The principle of utilitarianism was practiced. The act of obtaining this information, although a breach in privacy was used for the greater good and in the long run a greater number of people will benefit than the number from which the information was obtained. There are more benefits to gain from using this approach such as a better understanding of this bacterium which can lead to newer and more effective treatments for those already infected and possibly prevent new infections from occurring.
Bioethical issues associated with gastrointestinal illnesses in the Caribbean region

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According to a report done by the American Academy of Microbiology on resolving the global burden of Gastrointestinal Illnesses (GI), every single resident of any developed country is expected to become ill from an enteric infection at least once in the next 18 to 24 months, and yet gastrointestinal illness does not register prominently as a major public health problem. Public health addresses the health or physical well-being of a whole community while bioethics focuses on the ethical decisions that are made in life.

This paper aims at finding out if GI is truly a public health problem and does it affect people and the environment. Infectious diarrhea is one of the leading causes of mortality and morbidity worldwide. Ironically it also persists as a leading cause of preventable death especially in children under the age of five in developing countries. The problems faced by many countries vary but highlight the major differences in the goals of clinical management and the priorities of public health. Ongoing ill-health is one of the main reasons why the poor stay poor. Infections lead to poverty and poverty leads to infections. This would take into consideration the ends justifying the means which is linked to the utilitarianism theory and thus is a form of consequentialism, meaning that the moral worth of an action is determined by its outcome.

It will become evident that laws, policies and practices in the developed world affect the lives of persons living in developing nations. Most of the planet’s population live in developing nations and environmental factors affect human health.

Conservation - an ethic of resource use, allocation, and protection

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The primary focus of conservation is maintaining the health of the natural world: its oceans, forests, savannahs, wilderness areas...its biodiversity! Popular interest in protecting the world’s biodiversity has intensified in the last 50 years. Recognized conservation biologist and author Richard Primack argued that we are living in a period of unprecedented loss of biodiversity instigated by “beings who claim reason, a moral sense, and free will as their unique and defining characteristics” (Primack, 2006). Regrettably, the situation is exacerbated by human population increase and rising consumerism (Harding, 1998). With a current population of ~6.78B (USCB, 2009), human numbers are likely to stabilize at 10-15B in the next 50-100 years (Wilson, 1992). The loss of ecosystems is also likely to stabilize around that time, but the effect will have been a loss of 10-25% of our current biota. Naess, in 1973, documented a shift in professional thinking of ecologists (and the ecological movement) that has culminated in the emergence of a ‘shallow’, but presently rather powerful group, and a ‘deep’, but less influential, movement.

The dominant world view of Conservation Ethics is concerned only with the worth of the environment in terms of its utility, or usefulness to humans. It is often referred to as “shallow ecology” which maintains that the instrumental value of the environment is projected by an anthropocentric viewpoint; the environment is cared-for to improve man’s conditions (Naess, 1989). Proponents of shallow ecology provide compelling arguments in support of conservation based on ecological economics. Ethical arguments, however, possess additional, unique authority: the value systems here are also found in most religions/philosophies; hence they are readily accessible to the general public. On the other hand, several overlap with the “deep ecology” movement, and not all conservationists/scientists agree on all the arguments proposed. The main ethical arguments for preserving biological diversity include the right for each and every species to exist. Here, two positions are presented for promoting the survival of each species: all species represent unique biological solutions to the challenges of survival; and they have worth as living repositories of accumulated experience and history of previous life forms through their continuous, evolutionary adaptation. However, the focus on species would appear to challenge the traditional Western philosophy
of individualism. Do all species, have rights e.g. a moss, an amoeba? Does Plasmodium falciparum, the causative agent of malignant tertian malaria, have a right to exist? This parasite still kills ~1.5M people every year! Another ethical argument for preserving biological diversity is based on the premise that that the complexity of interactions between species is often significant, and that they occur almost exclusively in natural settings; the loss of one species may have far-reaching affects on others, resulting in extinctions of species, and destabilization of communities. Clearly, extinctions of [non-disease-causing] species should be prevented; scientists acknowledge that species disappear at an estimated rate of one species per million per year, with new species replacing the lost ones at about the same rate. Recently, however, humans have accelerated the extinction rate to where one species disappears, on average, every 13 minutes! Nature will take millions of years to repair what we destroy in just a few decades! It is now well established, if not fully recognized or accepted, that evolutionary mechanisms lead to increased biological diversity. Living populations should be allowed to evolve under natural conditions. There is, as yet, no consensus by philosophers as to which type of ethics (shallow (economical) ecology, or deep ecology) is more appropriate: philosophical and practical justifications for both exist. The role of the scientist is therefore not to attempt to resolve such problems, rather to consider the integrity of scientific knowledge and understanding to inform an ethic that can be applied to conservation and environmental challenges (see Alexander & Fairbridge, 1999). And the sooner the better! Among several other worthy global and regional interventions, UNESCO in 2005 launched the project “Education for Sustainable Development (ESD).” While still in its early stages, several Latin American and Caribbean countries are now on board (33 delegates attended the Bonn 2009 conference). ESD is designed to enable us to face the major challenges of today: preserving the environment, respecting biodiversity, protecting human rights” (UNESCO, 2009).

References
UNESCO (2009). Education for Sustainable Development

&URL_DO=DO_TOPIC&URL_SECTION=201.html

Further reading
Additional Essays by Gary W. Harding
http://www.strom.clemson.edu/becker/prtm320/tragedy_of_the_commons.html