Chapter 8

Engineering and Environmental Technoethics

INTRODUCTION

Since modern technology was boosted by the erroneous idea that every increase of human ability to produce is to the good, and to the extent that the consequence of this idea today is a danger to the ecosystem as a whole, we need a new moral code for technological daily activities to guide both researchers and industrial organizers, if not every member of the community --Agassi, 2003, p. 251.

This chapter traces the development of Engineering Ethics, Computer Ethics, and Environmental Technoethics. It also covers the topic of military technoethics as an important new development that deserves special attention. The story begins in the

late 19th century with the development of various engineering professional bodies to ensure that engineers were responsible for potentially harmful constructions. This in turn, gave rise to the creation of codes of engineering ethics to help guide professional conduct. As the public demand for engineering increased throughout the 20th century, so did the ethical implications and demand for codes of engineering ethics. In the 1950s and 1960s, the continued expansion of industrial growth lead also to a number of human caused environmental disasters ranging from oil spills to nuclear explosions to the release of toxic chemicals into the air and water supply. This brought on a public reaction among environmental organizations and increased public attention to ethical implications of technology and the environment. These developments helped nurture in studies in environmental technoethics and the ethical concern over human involvement in technology related environmental change. Also in the 1950s and 1960s, the public use of mainframe computers, promising outlook for computer networking, and scholarly interest in systems research raised additional interest concerning the ethical implications connected to computer innovation in society. This chapter provides a review of background developments, challenges, and current directions in each of these areas. It uses examples to illustrate the potency of technology in reference to key areas (i.e., access equity, software design, computer navigation systems, construction, mining, and other areas of technology use and misuse). It concludes with insider interviews from leading experts working in the field and recommendations on how to use technoethical inquiry to leverage the ethical use of science and technology in areas where technological innovation has created ethical challenges and dilemmas.

BACKGROUND

Engineering Ethics

During the 18th and 19th century, the industrial revolution in Great Britain was beginning to spread through Europe and North America, giving rise to major changes in agriculture, manufacturing, and transportation around the globe. In response to the growing demand for engineering expertise, multiple engineering organizations were established. In Great Britain, the Institution of Civil Engineers (established in 1818) was created to serve as a professional association for civil engineers. In the United States, the American Society of Civil Engineers (established in 1851), the American Institute of Electrical Engineers (established in 1884), the American Society of Mining Engineers (established in 1880), and the American Institute of Mining Engineers (established in 1871) helped to professionalize engineering and regulate the activities of engineers. Other important organizations in the United

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