The global challenges that are characterized by: climatic change, shrinking biodiversity, increasing rural and urban wastes, air and water pollution and accelerated consumption of non renewable resources require complex but sustainable solutions that are technically feasible, economically viable, environmentally responsible and socially acceptable. These challenges require approaches that will integrate multiple sources and numerous impacts to impart on land, water and air resources in an interaction that produces food and supports life on the planet in a sustainable manner. As Kenya and the region tackles the challenges of food security, gender empowerment, environmental protection, industrial development and globalization, the traditional role of engineers that involves single pass approaches to solve problems using resources that produce waste is changing to that of “Environmental and Biosystems Engineering” approach that employs the basic science of biology, mathematics, physics and chemistry as well as engineering sciences and designs to enhance the well being of animals, plants and the biosphere.