

The weaknesses of
the ecological
footprint
environmental
sciences essay



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Introduction

According to statistics provided by the World Tourism Organization the world tourist industry is flourishing at a yearly rate of 4%. Contribution of the industry in the economy has become a global trend. However, as the tourist industry flourishes, those activities have also resulted into environmental impact issues, such as traffic congestion, over-exploitation of natural resources, and issues created by inappropriate tourist behaviors. Apart from the effects on human, natural, and culture heritages, these create a lot of pollution (Wu, 2003). With the constant rise of environmental protection philosophies, "green consumption" is slowly from being a mere concept into real action. The hotel and restaurant industries, above all, are closely related to environmental protection (Kuo, 2000). It is truly said that the continued growth of development is having an extensive and different ecological impacts. The urban that are being expanded are including the agricultural land and established the ecosystems, reducing the local bio-productivity and biodiversity while there has been an increase in the level of demand for resources and other ecological services by the rising populations. Ecological Footprint has been co-originated by Professor William Rees and Dr. Mathis Waskernagel. The Ecological Footprint is rooted in the fact that all renewable resources come from the earth. It accounts for the flows of energy and converts these into the corresponding land/water area required for nature to support these flows. The Ecological Footprint is defined as "the area of productive land and water ecosystems required to produce the resources that the population consumes and assimilate the wastes that the population produces, wherever on Earth the land and water is located." It compares

actual throughput of renewable resources relative to what is annually renewed. Ecological Footprint looks at the total amount of global hectares that are required to support a particular population. The Footprints of individual nations vary considerably. The Ecological Footprint is a resource accounting tool that measures the human demand on the Earth. By calculating a person's Ecological Footprint, it shows whether he is living within the ecological budget or whether he is consuming nature's resources faster than the planet can renew them." We can choose to live on a depleted planet or we can choose to live on a rich, biologically diverse, more stable planet" proposes Dr. Mathis Wackernagel, co-creator of the Ecological Footprint.

Strengths of the Ecological Footprint:

It has an immediate intuitive appeal It is being used worldwide in a variety of settings. It addresses national, municipal, regional and individual footprint. It is used as a policy tool It is used as an indicator

Weaknesses of the Ecological Footprint:

It is not a precise measure of ecological sustainability It underestimates the impact of human activities on the biosphere It provides limited information about most of the non-renewable resources. It allows only general types of bioproductive areas to be identified (forests, cropland) It does not account for all human impacts on the environment.

Opportunities of the Ecological Footprint:

Efforts are being done so as to standardize the Footprint. It will increase the usefulness of this sustainability indicator. It will be used for different projects.

Critically assess Ecological Footprint with other existing environmental tools:

The Ecological Footprint is based on the concepts of capacity and the precautionary principle which though out without their critics (Kooten and Bulte, 2000), are commonly accepted in the field of ecological impact assessment (Rees, 1996). Its methodology is grounded in the physical measures of the ecological limits and the environmental impacts of the human activity and it provides a theoretical foundation for the evaluation and comparison. Essential in the metric is an interpretation of the goal of the ecological sustainability that is to live within the bio-productive capacity of the earth. The tool that is being used is clearly focused on the ecological sustainability and with its creator acknowledging there is an additional need for the social assessment frameworks (Wackernagel and Yount, 2000). Thus, the Ecological Footprint is not proposed as a complete measure of sustainability. Rather, it is presented as a tool captures the main global ecological concerns within its metric which reflect a crucial precondition for the sustainability- living within the ecological limits of the earth (Wackernagel and Rees, 1996). The inventors of the Ecological Footprint have put more emphasis on various potential uses for the tool. Since this tool has been developed, the use of the tool has spread quickly into a different range of applications. Its use now has been expanded from global and national accounts, such as the WWF's Living Planet Reports (WWF, 2006) to the regional, city and local area scales. With respect to urban planning and development, Wackernagel and Yount (2000, p. 34) define the Ecological Footprint as " a powerful tool for comparing the ecological demand of design options such as housing densities, transportation systems or infrastructure

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development". They say that: " urban design has a significant impact on people's consuming behavior. It influences not only how they shop, but also how they move around, what kind of houses they live in and what kind of urban infrastructure services they acquire". In another study, according to Muniz and Galindo (2005), they use the footprint analysis of travel-to-work behavior in Barcelona so as to conclude that urban form has a clear effect on the travel behavior which is greater than the socio-economic factors for example the average family income, and however that compact city policies that include the public transport and a mix of populations and activities resulting in a lower transport Ecological Footprints. With growing concerns on the environment, there are several international agencies which are using environmental data/information and indicators to evaluate current conditions and trends to provide information on the state of the environment. There are other environmental tools that exist.

EIA- Environmental Impact Assessment:

It is a process with a set of procedures. It is an assessment which helps decision-makers. It is a project that causes minimal degradation of environmental resources. It is a planning tool that is viewed as an integral component of sound decision-making. It also helps to identify, evaluate and mitigate the impacts caused by developments.

Sustainability Assessment Tools for Residential Estates

In order to decrease the ecological impact of urban development, it is important to make changes to the urban form and to the urban development practices. This process of change needs tools that can understand the

ecological sustainability in the context of urban development that is it must
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be able to achieve the aims and targets, facilitate change in the practice and measure the progress that is being done gradually.

EF- Ecological Footprint:

It accounts for the use of the planet's renewable resources. Its application includes analysis of policy, benchmarking performance, education and awareness raising and scenario development. As a policy tool, the ecological footprint is still in its infancy. Businesses are essential partners in delivering both the social and environmental dimensions of sustainable development. As organizations, they both meet the demand for goods and services required to enhance quality of life and, in the process, impact on the environment either directly or indirectly through their use of natural resources and their production of wastes. One problem for businesses wishing to benefit from improved environmental and social performance is the lack of reliable and credible methodologies to measure monitor and communicate progress. Recent years have seen an increase in companies using environmental management systems but few of these take life cycle approach and account for flow of material and energy. A number of approaches are available to businesses wishing to assess the environmental impact of their products or services. The issue of " how much" consumption is sustainable is also one that need to be addresses. Ecological footprint Analysis uniquely approaches the issue of sustainability by reference to the overall " carrying capacity" of the planet at the same time , it also link to the individual behavior to organizational, regional and global. There are many tools which measure environmental progress and consumption of resources, such as the ISO 14000, the Environmental policies and measures (EPM), the

Environmental Protection Act (EPA), the Environmental Impact Assessment (EIA), the Life Cycle Assessment (LCA), I-O, SPI, the LCIA, and the Environmental Management System (EMS).

Critically assess EF with other existing environmental tools

Ecological footprint is an estimate of the amount of space on the earth that an individual uses in order to survive using existing technology. This space includes biologically productive land and water area that produces the resources consumed by that individual such as food, water, energy, clothing, and building materials. It also includes the amount of land and water required to assimilate the waste generated by that person. In line with the management consultancy mantra that to manage something effectively you need to be able to measure it, the metrics of sustainability have become progressively important in the policy world, as governments, NGOs and others attempt to identify whether their strategies and policies are indeed beginning to have an impact. This "metric turn" has encouraged support for existing measurement techniques such as environmental audits, environmental impact assessments, strategic environmental assessments and state of the environment reporting, while unchecking a range of new techniques for measuring environmental impacts. These approaches range from sustainability evaluation to more fundamental ideas such as Ecological Footprints. Both new and older techniques for measuring sustainability push for policy saliency, each with its own intellectual justifications, supporters and critics, and in most cases, people whose income or professional standing in some part derive from their adoption and, equally important, local adaptation. The key players in the new metrics industry include those in

consultancies of various kinds, universities, NGOs and government departments. We do not mean to assign base motives to any of those involved, since most are strongly committed to developing approaches that help shift behavior patterns in ways intended to bring about environmental improvements. We do, however, want to argue that there is more at stake here than who measures sustainability best; underlying the competition for how to measure sustainability is an ethical debate about what it is that needs to be measured, why and how. In terms of environmental problems, for instance, there is always basic political and scientific biases in choosing which "problem" merits most research money attention in different contexts. For instance there are other measuring tools which are used like:

Environmental Policies and Management (EPM)

This is used by government or other authorities to implement their environmental policies. That is, it focuses on problems arising from human impact on the environment which retroacts onto human society by having a negative impact on human values such as good health or the clean and green environment.

Environmental Impacts Assessment (EIA)

An environmental impact assessment (EIA) is an assessment of the possible positive or negative impact that a proposed project may have on the environment, together consisting of the environmental, social and economic aspects. The purpose of the assessment is to ensure that decision makers consider the ensuing environmental impacts when deciding whether to proceed with a project. Environmental assessment is a systematic procedure that is designed to identify, examine and assess the environmental effects of <https://assignbuster.com/the-weaknesses-of-the-ecological-footprint-environmental-sciences-essay/>

a particular product or an activity. The aim of this process is to identify any foreseeable adverse impacts throughout the life cycle of a product.

Environmental Assessment allows an effective combination of environmental considerations and public concerns into the decision making. The environmental assessment tools are divided into four sections namely: Life Cycle Assessment, Environmental Risk Assessment, Life Cycle Cost, and Eco-efficiency.

Environmental Protection Act (EPA)

This act is to provide for the protection and management of the environmental assets of Mauritius so that their capacity to sustain the society and its development remains unaffected and to raise harmony between quality of life, environmental protection and sustainable development for the present and future generations; more specifically to provide for the legal framework and the tool to protect the natural environment, to plan for environmental management and to manage the inter-relations of environmental issues, and to ensure the proper implementation of governmental policies and application provisions necessary for the protection of human health and the environment of Mauritius.

The model consists of six parts: Food, energy, textile, paper, waste, and construction land. Various resource or energy consumption items are converted into biologically productive land areas. There are six basic types of biologically productive land: Cropland, grazing land, forestland, construction land, fossil energy resource land, and water (marine) area. The ratio between the consumption of a certain type of goods and the yield per unit of such goods on a certain type of land is the biologically productive land area

required for that type of land. Multiply the figure by the corresponding equivalent factor, and we have the required area for this type of land under local or international standards. Wherein: E_{Fi} : represents the ecological footprint of a certain category, normally expressed in units of global hectares (ghm^2). Q_i : represents the total consumption of a certain type of goods, normally expressed in units of kilograms (kg) or tons (t). P_i : represents the world average yield of this type of goods, normally expressed in units of kilograms/hectare (kg/hm^2). E_i : is the equivalent factor for the type of the land which produces this type of goods. And, the value of the coefficient varies with land type.