

Aleya Abdel-Hadi · Mostafa K. Tolba  
Salah Soliman (Eds.)

# Environment, Health, and Sustainable Development



Advances in People-Environment Studies  
Volume 1

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# **Environment, Health, and Sustainable Development**

## **Advances in People-Environment Studies**

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(Series Editors)

The new book series *Advances in People-Environment Studies*, published in collaboration with the International Association for People-Environment Studies (IAPS; [www.iaps-association.org](http://www.iaps-association.org)), is a timely initiative to provide researchers with up-to-date reviews and commentaries on the diverse areas of people-environment studies that are of current concern. The series focuses on significant and currently debated themes. The books are interdisciplinary, drawing on expert authors from the social, environmental, and design disciplines, especially those who are working at the interface between the design (e.g., architects, landscape planners, urban designers, urban planners) and the social sciences (e.g., environmental psychologists, sociologists, geographers). Each volume reports on the latest research and applications of research in the field. The series is meant to provide a bridge, not only between disciplines but also between cultures. The authors and contributors come from many different countries and are undertaking research and practicing in culturally diverse environments. Books in the series are therefore a precious source for those who want to know what is going on in a specific field elsewhere and to find ideas and inspiration for their own work.

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# Foreword

It is a curious feature of the interdisciplinary area in which we work that books have not been a significant output of those working in the field; there are even relatively few textbooks. Environment-behavior research was well served in the early years by several book series such as *Human Behavior and Environment: Advances in Theory and Research*, *Advances in Environment, Behavior, and Design* and *Ethnoscapes*. These provided the field with themed and state-of-the-art overviews of particular areas of research in which environment-behavior researchers were particularly active.

It has been few years since new volumes have appeared in any of these series, so the arrival of *Advances in People-Environment Studies* is a timely initiative to provide researchers with up-to-date reviews and commentaries on different areas of people-environment studies, which are of current concern. More precisely, the objectives are to produce a series of books that focus on significant and currently debated themes. They will be interdisciplinary, drawing on expert authors from the social, environmental, and design disciplines, especially those who are working at the interface between the design spheres (e.g., architects, landscape planners, urban designers, and urban planners) and the social sciences (e.g., geographers, environmental psychologists, and sociologists). Each volume will seek to report on the latest research and applications of research in the field. The series is meant to provide a bridge, not only between disciplines but also between cultures. The authors come from many different countries and are undertaking research and practice in culturally diverse environments. Books in the series are therefore a precious source for those who want to know what is going on in a specific field elsewhere.

The International Association People-Environment Studies (IAPS) was founded in 1981, following a number of conferences throughout Europe which brought together researchers from the social science and design disciplines who were interested in people-environment relationships. IAPS aims to promote dialog, research, collaboration, and dissemination in the field of environment and behavior studies. Every 2 years, it holds an international conference on a theme of topical significance. The present volume has emerged from the IAPS Conference held in Alexandria in 2006. The theme of this conference was *Towards Sustainable and Healthy Environments* and reflected the growing awareness and interest not only in sustainability, but also in its relationship to health. The concept of sustainability has developed considerably since the early Brundtland definition and it is now appreciated that it is more than just about the protection of environmental resources, but extends to all aspects of our social and economic life. Recent research demonstrating that increasing wealth does not necessarily lead to increasing happiness is a good example. Furthermore, such material aspirations (with their implications for energy consumption, carbon emissions, and global warming) may lead to stress and anxiety and deterioration in health; thus, a link is drawn between sustainability, environment, and health. It is now being appreciated that in order to achieve a heightened quality

of life for all people – not just the wealthy and healthy – within a framework of people-environment interactions, it is crucial to create more sustainable environments, that is, environments that encourage and enable lifestyles that favor sustainability. There has also been a growing consciousness of the link between environmental conditions and health issues. The WHO quality of life assessment questionnaire is one of the outcomes of these concerns. In fact, the people's relation to their environment in terms of health and well-being, a crucial aspect of sustainable environments, has not been sufficiently addressed. We hope that this volume will represent a useful contribution to this important area of research.

Gabriel Moser and David Uzzell  
Series Editors, January 2010

# Introduction



# Environment, Health, and Sustainable Development

Aleya Abdel-Hadi, Mostafa K. Tolba, and Salah Soliman

In “A Global Agenda for Change,” the World Commission on Environment and Development formulated (1987) the following steps to be taken into consideration by all nations:

- To propose long-term environmental strategies for achieving sustainable development by the year 2000 and beyond;
- To consider ways and means by which the international community can deal more effectively with environment concerns;
- To help define shared perceptions of long-term environmental issues and appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment.

The summits that followed – “Millenium 2000” and “World 2005” – issued declarations concerning peace, security, equity, and human rights to all people, with a focus on the less fortunate: the vulnerable, the poor, and those with special needs. Proposals in the area of development call for breakthroughs in debt relief and trade liberalization, and increases in aid to revitalize infrastructures and improve health and education services, in order to achieve the Millenium Development Goals (MDGs). From the previous three resolutions that had a considerable impact on the direction of world socio-economic and political orientation, sustainability and health were seen as integral aspects of global environment concerns.

Sustainable development was defined by the Brundtland Commission (1987) as a pattern of resource use that aims to meet human needs today and in the future while preserving the environment. UN Agenda 21 (2001) emphasized that in sustainable development everyone is a user and a provider of information, and that for achieving sustainable development broad public participation is a fundamental prerequisite. On another dimension, the Declaration of the UN Permanent Forum on Indigenous Issues (UNPFII, 2007) added a fourth pillar to the three pillars of sustainable development (i.e., environmental, social, and economic), the cultural.

The World Health Organization (1946) defined health as “a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity.” An individual’s well-being is defined as sufficiency in all aspects of his/her life, including: satisfactory human relationships, meaningful occupation, opportunities for contact with

natural- and human-made environments, social networks, creative expression, and making a positive contribution to society.

Sustainable and healthy environments constitute the overarching issues dealt within the chapters of this book. The authors discuss challenges, cases and successfully implemented environmental measures intended to promote health and sustainability. These include the necessity to formulate appropriate strategies for sustainable development, to reconsider the construction of cities and urban development in a broad environmental, economic, social, and political context that explicitly accounts for health and well-being, and, the application of time and space management to enhance the coordination of multilevel participatory intervention; each of these has a positive impact on residents' health and well-being. Thus, sustainable development ensures not only the significance of including environmental protection as one of its three components but also is concerned with the health of young and adult groups in their socio-cultural contexts, that is, it deals with the quality of life.

## **Toward Sustainable and Healthy Environments**

It is a reality that global environmental issues are the pressing factors that need to be addressed in order to preserve mankind and our planet from the destructive effects of human activity, in sum *to protect life*. Therefore, it becomes vital to promote behavioral changes in consumption, waste and pollution, poverty, and social marginalization, to open equitable rule-based, predictable, and non-discriminatory multilateral trading and financial systems that benefit all countries in the pursuit of sustainable development. In this context, Serageldin proposes the use of *sustainability as opportunity*, in a similar way to Brundtland; except that opportunity means giving future generations as much or more capital per person than we have today. Furthermore, in putting it per person, one takes into account population growth. He stresses the importance of collaboration based on quality and not on quantity. *Quantity* in his opinion *is a zero-sum game and separates people, whilst quality is a win-win game and brings people together*. He also calls for addressing priorities: more crop per drop, food security, better agriculture, that is, immediate improvements can be implemented without waiting for solutions to everything.

In fact, the quality of implementation is much more beneficial to people and to their environments than quantity, as well as anticipatory and preventive policies rather than reaction and cure. In his chapter, Tolba recommends the dissemination of information on environmental and conservation problems and their place in the process of achieving sustainable development, so that decision-makers, at all levels and in different sectors, move from react-and-cure to anticipatory and preventive policies. He stresses that strategies for sustainable development must look to people, motivate them, and give them the tools to achieve their aspirations. Globalization is offering new opportunities for trade, capital flows, and advances in technology, and it should be fully inclusive and equitable, with its benefits being shared by everybody.

Effective collaboration at all levels and in all fields is a prime requirement to achieve positive results for sustainable environments. The complexity of social, economic, and environmental problems and the compartmentalization of scientific and professional knowledge always lags behind the capacity to deal with certain issues. In his chapter on Healthy Cities, Lawrence argues that the lack of effective collaboration between scientists, professionals, and policy decision-makers has led to the “applicability gap” in sectors that deal with urban planning, public health, and many other sectors concerned with the construction and maintenance of cities. He calls for *a necessity to shift from monodisciplinary to interdisciplinary and transdisciplinary concepts and methods*. In order to be effective, this shift should be founded on a clarification of definitions, goals, and methods. He suggests the use of geographical information systems that represent data from diverse sources (including remote sensing) in order to identify relationships between the represented components of urban areas, and concludes that environmental impact assessment, health impact assessment, and cost-benefit analysis can be used to study interventions that are meant to promote ecosystem health and therefore human health.

Moving from global to local, the following chapters address more specific issues in particular socio-cultural contexts, and in the process attempt to illustrate interdisciplinary methods in use.

## Healthy Environments for Children and Adults

The development of citizen’s involvement plans for the promotion of early, frequent, and regular participation in local decisions and actions is an essential means of creating healthy environments and hence enhance people’s quality of life. This section exemplifies some approaches that fulfill this meaning in different ways; from the empowerment of women to control their family schedules, to residents’ control over their housing areas, and lastly to children’s views and participation in the decisions taken on their environment.

A new approach to urban planning focuses on temporal qualities and the relationships with social and spatial structures. It can be considered as an attempt to encompass the problematization of time and its relationship to space. It adds new forms of participatory governance in which citizens, specialists, and politicians form partnership and contracts. Horelli’s Finnish model of time planning helped mobilize all local actors, whether people, institutions, companies, or material artifacts, into a network that allowed the creation of new linkages and the reconfiguration of existing structures in order to manage the time and space of everyday life. In her chapter, she monitored three dimensions of time – subjective/objective, individual/collective, and social, with time defined as past, present, and shapable future – are relevant but need further studies; intervention and service packages allow more opportunities for women to control their family schedule.

Henderson’s findings suggest that for highrise developments to enhance the residents’ quality of life, the influence of management bodies needs to be considered. Residents like to feel a sense of control over their homes and possess an ability to access nature. The

availability of a park, garden, or waterfront can enhance health and well-being, and possibly alleviate the effects of racial tension and social exclusion for public housing tenants.

At the childhood level, incorporating their view of the environment and the possibility of creating participatory situations that include their involvement in decision taking is an under-utilized approach to achieve healthy sustainable environments. In a comparative study of children's views of the environment, Björklid and Nordström present – in two separate chapters – the differences in children's priorities based on socio-cultural contexts in relation to issues such as *basic services, safety and security, and urban and environmental qualities*. In the final chapter of this section, Paget calls for a change in the way of learning such that schools and planners work together to reach a better understanding of each others' standpoint. Paget discusses participatory planning and implements a method for its achievement, arguing that an awareness of the knowledge/competence of the other actors in the process can lead to a greater willingness to enter a participatory situation, including children when making decisions on outdoor spaces.

## **Settlement Patterns, Housing, and Sustainability**

The fast-growing urban expansion of cities worldwide has led to a mosaic of housing patterns; some are vernacular in form and differ in tenure, while others are planned and designed to absorb an influx of residents – renters or owners – escaping the city. Concepts of sustainability in such situations can start by exemplifying the principle of conservation (i.e., survival), followed by the concept that all life is on a communal basis (that future technology must function within bioregional patterns and scales), and finally the ethical concept of sustainability (weighing the paradox of our illusion of affluence against the injustice of environmental degradation). In sum, housing seeks to promote more sustainable development patterns, secure an urban renaissance and improve the quality of life.

Privacy is an important aspect of sustainable residential environments. It is sought for through affluence in the form of gated communities (GCs), while in other places privacy zoning is recommended as part of the design guidelines. Altman's three levels of privacy are rejected in the chapter by Dorst, and instead new levels are identified, with the possibility of increasing these indefinitely according to the site, the location, the group, and the culture concerned. It is not so much a renewed look at environment-behavior relations but a modification of an important aspect of sustainable, liveable environments. At the same time, this suggested privacy zoning is a tool with which designers can make a contribution to the control of social interactions by residents themselves.

From their findings, Lay and Reis confirm in the following chapter that most of the factors that affect environmental performance are related to design aspects; when ambiguous spaces exist, residents tend to modify the physical definition of spaces adversely, affecting security, environmental comfort, overall visual appearance, legibility and orientation, self-esteem, relationships among residents, and sense of place, which are all conditions necessary for adequate performance and sustainability in residential environments.

Gated communities, some would argue, are a form of ethical sustainability. Chapters on GCs in Argentina, Egypt, and Turkey confirm that a motive that drives people to GCs is one of seeking “a better quality of life,” which is in line with the already published literature on GCs in other parts of the world. Heinrichs and Kabisch state that an indirect positive effect is the reduction of the negative image upon streets improvement and the availability of infrastructure facilities. Abdel-Hadi and Elazhary show that at the design level the studied cases meet only two requirements, basic needs and the provision of a clean, safe, and esthetically appealing environment; while at the social level they do not foster mutually supportive social ties between residents. Gökmen raises the issue of the effects of density with the advent in recent years of more walk-up apartments as opposed to the initial low-rise villas in early GCs of the 1980s. An important question is raised by all the authors on the impact of GCs on adjacent poorer neighborhoods: *What will happen when these communities get older and will their increasing numbers in centers or peripheries of cities create segregation and polarization?*

This section moves on to the professional level and explores the effect of the architect’s cultural background and his/her esthetic values and beliefs as shaped by his/her school of thoughts on the relationship between the architect and his/her city. In her case study, Malhis identifies three major groups of Amman’s practicing architects: the regional, the local, and the rhetoric. She stresses the effectiveness of this relationship in providing the architect with the analytical and sentimental power to decode the clues, which allow the individual to interact with the groups’ needs. At the educational level, Nishimura and Iwasa present in their chapter a successful educational program involving students in a real architectural practice where they go through experiences never met before. The program is rewarding not only for the students but also for the inhabitants, the officials, and the professors.

## **Managing the Environment and Nature**

This final section deals with all matters concerning the management of the environment; experiential landscapes, managing risk, noise perception, expertise in sustainable development, and water conservation.

Experiential landscape focuses in particular on elements of people-space relations research, which relate to spatial and geometrical properties that are increasingly associated with human psychological and emotional well-being. Thwaites and Simkins combine theoretical inquiry and practical application. They reach a resolution that the role of analysis and design in experiential landscape is less about prescribing and fabricating form and more about creating the conditions in which to optimize experiential opportunity. They accept that, to some extent, the environmental form will appear as it will, then change and evolve.

In managing the environment, public involvement becomes imperative; it constrains peoples’ usual resistance to change. Castro et al. anticipate that transformations challenging a culture’s more central claims to knowledge are bound to be resisted; some are

resisted on moral grounds. They also show how the attribution of responsibility to the Other and the optimistic minimization of perceived risk for the Self in the case of floods result in resistance to change.

Sustainable development calling for the involvement of consumers and users of the built environment emerges again, and “conventional wisdom” is referred to as an alternative to sustainable development expertise. In his chapter, Symes declares that innovations in the technical performance of buildings are clearly at the heart of design for sustainable development, whereas in the preceding chapter, Refaee et al. identify statistically significant relationships between indoor environment, human activity, and home characteristics.

A final chapter on environmental worldviews and water conservation tests the presence of an integrative eco-anthropocentric paradigm (EAP), which conceives nature as a source of resources for satisfying human needs while, at the same time, sees it as having intrinsic value and being in need of preservation. Corral-Verdugo et al. recommend that further research is needed in order to corroborate the presence of the EAP in more cultures, as well as to investigate the predictive value of this belief system on sustainable behavior.

Following a long tradition of in-depth studies on socio-cultural behavior in the built environment and with the belief that *sustainability cannot be considered in isolation from its social, cultural, and its place related context*; the authors of the chapters presented in this book prove through their research studies that sustainability is a continually evolving process. Sustainability is a journey and research process, and writing on sustainability reflects certain periods of time, places and technologies, and when these are changed, the goals for sustainability have to be altered as well.

We hope that the presented chapters will form an important and useful addition to the available literature on the new theme of “Environment, Health, and Sustainable Development.” We would like to extend our appreciation and gratitude to all the authors for their informative and valuable contributions in the field of people-environment studies. Deep gratefulness goes to members of the Scientific Committee who reviewed all the presented conference papers and assisted in the selection of the accepted papers for publishing. We conclude by thanking the Series Editors of *Advances in People-Environment Studies*: David Uzzell and Gabriel Moser for their valuable contribution and support during our work as editors.

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# **Towards Sustainable and Healthy Environments**



# Environment and Sustainability

## The Overarching Issues

Ismail Serageldin

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### Abstract

Life on earth depends on sustaining the environment with its various ecosystems. Today, these ecosystems undergo fundamental changes driven by demographic transitions, economic growth, and human-induced climate change. World population growth and economic growth are together responsible for what is called the “ecological footprint,” which measures our impact on the environment in terms of resource depletion and environmental degradation. This impact on the earth’s ecosystems is growing gradually threatening environmental sustainability and future generations’ opportunity to inherit a pristine environment and to meet their own needs. Given this, it has become essential to consider the ecological evaluation of national economies. This chapter recommends the “Greening” of National Income Accounts and the introduction of capital accounts using “genuine saving” that incorporates the cost of environmental factors. Such measures would lead to new ways of economic management that should help develop sound economic and environmental policies. This chapter also recommends a set of global actions to preserve the environment and stop its degradation.

**Key words:** conventional economics, economic evaluation, environmental change, environmental economics, environmental impacts, environmental sustainability

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We live in an interconnected world with various ecosystems which are integrated into one complex form of life that connects the whole planet together. Life on earth depends on sustaining the environment whether it is the climate, the availability of freshwater or the other natural resources. Today, these ecosystems undergo fundamental changes driven by population growth, growing demands on food and feed, and human-induced climate change. Moreover, the level and pattern of our energy consumption is threatening the

sustainability of the environment. However, as this pattern has been maintained for decades, people have become unaware of the necessity to change it.

Given the huge environmental changes that are faced at a global level, and the difficulty to accurately measure the real economic growth and the human impacts on environment, this chapter attempts to show the benefits of adopting Green National Income Accounts that considers environmental accounts together with conventional national income accounts.

## **The Global Environmental Situation**

The world goes through demographic transitions and climate changes that create a huge momentum and inertia both in the demographic transitions and in the economic systems. There is a demographic change taking place in the world consisting, on one hand in an unprecedented population growth, and on the other hand in a change in the world population's age structures due to the growing number of youth in the developing countries. This means that even if fertility reductions are equal to the replacement rate, the world population will still continue to grow for at least two more generations. Given this, any plans to stabilize the growth rate will inevitably take time.

There are also other changes that we have caused to our environment. One of these changes affects the availability and the quality of freshwater. Water pollution is the cause of 2–5 million infant deaths every year. Air pollution is another problem. According to the World Health Organization, 1.3 billion people, most of whom are living in the cities of the developing countries, are breathing air which is unfit for human beings. In addition, 800 million people suffer from indoor air pollution due to biomass burning stoves.

World population growth and economic growth are together responsible for what is called “the ecological footprint”: a measurement of human impact, especially a large population, on the earth's ecosystems. Agriculture, for example, is responsible for devastating about 70% of the land transformed by human beings; moreover, it consumes about 65% of all the total world water withdrawal. As human beings expand their ecological footprints, they are also impacting on the availability of habitats for different species. Human beings are responsible for 23% of bird extinction in the world and 43% of the land mass in the planet has been transformed for human habitation, and these are only few examples.

However, there is no direct relation between the level of development and the intensity of the ecological footprints. There is no evidence that the higher the level of people, the more impact they have on their environment; populations without safe drinking water are mainly poor populations, while, the emission of carbon dioxide increases with more urban concentrations. The trend, thus, varies depending on various factors.

## **Challenges to Conventional Economics**

It has become essential to challenge conventional economics in favor of environmental economics. As conventional economics do not measure the national income accounts