Older Adults and the Environment: Making the World a Healthier Place

Scottish-born American conservationist John Muir said: “When we tug at a single thing in nature, we find it attached to the rest of the world.”

The environment is critical to global ageing, and population ageing is critical to the environment. The relationship between people and their environment is not new. However, recently scientists, public health professionals and gerontologists are taking a closer look at environmental health impacts on older adults and how an ageing society can affect the environment. The air we breathe and the water we drink are natural resources upon which we depend for a healthy life. There are two periods during our lifetime when we are especially susceptible to environmental hazards: when we are very young and our bodies are developing and then later in life when our body’s systems no longer function at their peak.

Older adults are particularly susceptible to environmental hazards because as we age, our bodies are less capable of coping with such toxicants as air pollutants or microbes in drinking water. Additionally, many older adults live with chronic conditions that often require medications that may diminish the body’s ability to cope with extreme temperatures. By virtue of living a long life, persistent chemicals remain in our bodies. For example, lead is stored in our bones and dioxin or the metabolites of PCBs or DDT are stored in our body’s tissue. These persistent toxicants may have come to be stored in the body from exposures early in life, in the workplace, home or community. They may have been ingested by drinking water containing microbes or metals. We may have inhaled unhealthy air from living near coal fired plants, highways or from using wood burning stoves to prepare food. In the United States and many countries all over the world, laws have been enacted to protect the public health and the health of our environment. In some countries additional margins of safety have been required to ensure that the most vulnerable are protected from residues of pesticides (such as the U.S. and Canada) on our foods.
Climate Change
Climate change is an increasing problem that may well be the greatest global public health issue of the 21st century (Costello et al., 2009). Those least well off and most dependent on others, especially the young and the old, will be the most affected by climate change and its consequences, including extreme heat events, drought, and flooding due to heavy rains. In addition, poorer nations will suffer the greatest consequences of climate change, even though they have contributed the least to the production of greenhouse gas emissions.

President Obama in his opening remarks to the United Nations General Assembly, said: “The danger posed by climate change cannot be denied. Our responsibility to meet it must not be deferred. . . . Future generations will look back and wonder why we refused to act; why we failed to pass on an environment that was worthy of our inheritance.”

This call to action must be heard and embraced because the path we are on threatens the survival of our planet and her inhabitants.

The Intergovernmental Panel on Climate Change has defined climate change as: “changes in atmospheric abundance of greenhouse gases, in solar radiation and in land surface properties altering the energy balance of the climate system” (IPCC, 2007).

Scientists as well as policymakers worry most about the fact that global warming is accelerated by human activities that fuel the production of greenhouse gas emissions. We change the atmosphere’s composition by burning fossil fuels. We alter the land through deforestation and urbanization. All too often we have taken our planet’s natural, pervious surface and converted it into impervious surfaces, such as parking lots and roadways.

Scientists have observed that some consequences of climate change are already occurring. Observed effects include sea level rise, shrinking glaciers, changes in the range and distribution of plants and animals, trees blooming earlier, lengthening of growing seasons, ice on rivers and lakes freezing later and breaking up earlier, and the thawing of permafrost.

A key issue being studied is how our communities and the Earth’s environment will adapt to or cope with climate change. So how does climate change affect human health? Climate change affects our health both directly and indirectly. Extreme weather events, floods, droughts, windstorms, fires and heat waves directly affect human health. Climate change indirectly impacts health through altered or disrupted location of vector-borne diseases by affecting the incidence of diseases associated with air pollutants and aeroallergens.

The health status of millions of people, particularly those with low adaptive capacity, will be affected by climate change. With climate change we will experience increases in malnutrition and consequent disorders, with implications for child growth and development as well as the health status of vulnerable elders throughout the world. It is expected that climate change will also cause an increase in deaths, disease and injury following heat waves, floods, storms, fires and droughts. Moreover, there will be an increased burden of diarrheal disease; a greater increase in the frequency of cardio-respiratory diseases due to higher concentrations of ground-level ozone; and altered spatial distribution of some infectious disease vectors, waterborne and food borne, such as Hantavirus and West Nile disease.

We should be concerned about the relationship between the environment and mankind. However, we need specific interventions, nation by nation and region by region, to ensure that today’s elders, and children—tomorrow’s elders—will have a habitable, healthy environment in which to grow old.

Those Most at Risk
Health consequences of climate change include death, disability and suffering. According to the International Panel on Climate Change (IPCC, 2007, p. 393), “Populations with high rates of disease and debility cope less successfully with stresses of all kinds, including those related to climate change.”

Individuals in poor health are more vulnerable to the effects of climate change and have a reduced capacity to adapt to these threats. It is ironic that those who have contributed the least to climate change will suffer the most. IPCC projects that those at greatest risk, those who will bear the brunt throughout the world, include young and old who are counted among the urban poor living in traditional societies as well as subsistence farmers, and coastal populations.

Those at risk share a common characteristic of having low adaptive capacity. Climate change is only one of a number of global changes that affect human well-being. Non-climate stressors will increase the severity of
climate changes, such as socio-economic status, technology, infrastructure, human capital, and social context. Mitigation and adaptations are critical to the survival of those living at greatest risk.

**Smart Growth and the Built Environment**

A major step we can take to make the world and our community a better place to live is to implement the principles of smart growth and energy efficiencies. Smart growth can address both environmental concerns, such as greenhouse gas emissions and human health impacts from air pollution and water contaminants. The built environment is critical to climate change. Where and how we develop the land directly affects not only our natural resources, such as wildlife habitat, but also the health of the Earth’s inhabitants.

As we build, we replace natural cover with impervious surfaces such as concrete or asphalt. Joni Mitchell lamented in her song, *Big Yellow Taxi*—a song she wrote 40 years ago—that paradise was being paved. It was then and it is still happening today.

“The United States, with its 214 million motor vehicles, has paved 6.3 million kilometers (3.9 million miles) of roads, enough to circle the Earth at the equator 157 times. In addition to roads, cars require parking space. Imagine a parking lot for 214 million cars and trucks. If that is too difficult, try visualizing a parking lot for 1,000 cars and then imagine what 214,000 of these would look like. We have paved paradise and we have put up lots of parking lots.”

More roads and parking lots increase the problem of non-point source water pollution and contamination of water supplies. When it rains, road runoff of oil and gas, metals, nutrients, organic waste can all end up in our sewers, streams and lakes and potentially threaten human health.

**Smart Growth Facilitates Healthy Cities**

Smart Growth, characterized by development patterns that create attractive, distinctive, walkable communities, offers people of all ages, wealth, and physical abilities a range of safe, affordable, convenient choices of where to live and how to get around. Communities across the globe are using creative strategies to develop in ways that preserve natural lands and critical environmental areas, protect water and air quality, and reuse previously developed land. Communities conserve resources by reinvesting in existing infrastructure and reclaiming historic buildings.

By designing neighborhoods to contain homes, shops, offices, parks, and other amenities, these communities are giving their residents and visitors the option of walking, bicycling, taking public transportation, or driving. A range of different types of homes makes it possible for persons to stay in their homes as they age and for young people to purchase a safe, attractive home they can afford.

Through smart growth approaches that enhance neighborhoods and involve local citizens in development decisions, these communities are creating vibrant places to live, work, and play. The high quality of life in these communities makes them economically competitive, creates business opportunities, and improves the local tax base.

**Five Design Principles that Affect Climate Change and Build Social Connections**

Principles that guide the development and enrichment of communities are as applicable for elders as they are for younger people. For example, with well-designed transportation alternatives, communities can not only facilitate movement, but also lower greenhouse gas emissions.

A study by Reid Ewing found that residents of the most walkable neighborhoods in the United States drive 26% fewer miles per day than those living in the most sprawling areas (Ewing, Pendall, & Chen, 2002). First, density can help make communities more walkable and support public transit. Next, mixed land use ensures that housing and amenities, such as grocery stores and pharmacies, are located nearby. Third, parks and green spaces can reduce the heat island effect and reduce water run off from streets and parking lots. Fourth, energy efficient buildings can reduce the need for electricity. Finally, density and public activity are necessary for vigorous neighborhood social networks. Persons without secure streets and public places to draw them outside their dwellings are more likely to suffer from isolation and social distance.

Powell Lawton, an American pioneer, recognized the importance of one’s environment; he theorized that the more dependent one becomes on others to carry out activities of daily living, the more important one’s environment is. Mobility can be hampered or facilitated
depending on one’s environment, both in the community as well as one’s home.

In 2007, the United States Environmental Protection Agency (EPA), the Centers for Disease Control and Prevention, the President’s Council for Fitness and Sports, and the National Council on Aging announced a recognition program entitled Building Healthy Communities for Active Aging. More than 40 organizations now support this award program that, while focusing on ageing, demonstrates how changes to the built environment benefit persons of all ages.

Around the same time, the World Health Organization announced the Global Network of Age-friendly Cities initiative by identifying the key elements of the urban environment that support active and healthy ageing. More than 30 cities from around the world responded to questionnaires and confirmed the importance of access to public transport, outdoor spaces and buildings, and the need for appropriate housing, community support and health services. They also found the need to foster the connections that allow older people to be active participants in society, to overcome ageism and to provide greater opportunities for civic participation and employment.5

In this issue of Global Ageing, we have contributions of some keen observers about the effects of the environment on older people and their role in preserving the legacy of our natural environment, our land, air and waters. Kate Auty and her colleagues remind us of the relationship between indigenous people and the environment, noting we need to ensure that we maintain an understanding of these cultural connections, that we respect their diversity, and that we plan for their inclusion. Those who were present at the International Federation on Ageing 10th Global Conference in Melbourne heard Joy Wandin Murphy, an elder of the people who first occupied the land including Melbourne itself, inspire the audience not only to be more than respectful of their forbears, but also to include them in decisions affecting their people and land.

Neal and her colleagues describe projects that connected students of the North with a community in the South that improved the quality of life of older Nicaraguans and their families while offering students in Oregon, USA with learning and serving opportunities that changed the direction of their lives—through intimate understanding of the dynamics of a very poor nation.

Sturle Monstad describes an intergenerational environmental effort, the Grandparents’ Climate Campaign. Norwegian elders are advocating, not on their own behalf, but for the next generation who will inherit the Earth. Their principal motivation for involvement is the future health and well-being of their grandchildren.

That’s a powerful case for the primary role grandparents have in working with their children and grandchildren to ensure that their shared environment is preserved. A subtheme throughout this issue pertains to how elders are and must be environmental stewards, teachers and advocates. The writers have shown that climate change will impact greatest the very young and very old.

Skinner and Rogers summarize well the benefits to be gained from engaging elders in being stewards of the environment. They write: “New Zealand’s Positive Ageing Strategy promotes the value of older people and affirms their importance in the community. . . . and recognises the importance of sharing wisdom and knowledge and passing this on to younger generations.” This entire issue provides practical solutions to what is becoming increasingly an urgent problem—of global warming and environmental degradation.

The IPCC predicts that extreme weather events will be more common and more severe due to the fact that more people are living alone and the world population is ageing. Gusmano and Rodwin’s article describes how a planning tool, geographic information systems (GIS), can map and locate neighborhoods with high concentrations of vulnerable and socially isolated elders in urban settings and its benefits to emergency preparedness.

Elders as Environmental Stewards
The challenge of this generation of older adults is to protect and to leave to their children and grandchildren a healthy and sustainable environment. Sharing their knowledge of the environment and the need to sustain the ecology with the younger generation is both a rewarding experience and a wonderful legacy.

Elders can help get children off the couch, away from their computer games and into the community where they will learn to appreciate parks, woods and open spaces. When many of us were young, we played outside until we were called in for lunch or dinner. Times have changed, and obesity has reached epidemic proportions worldwide. Both young and old can benefit from getting
outdoors and reconnecting with nature. Richard Louv’s words from the *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder* (Louv, 2008) resonate with not only ecologically aware elders, but also public health professionals. Federal legislation entitled “No Child Left Inside” was also inspired by Louv.

**U.S. EPA’s Aging Initiative**

The U.S. EPA has supported grants that train elders to be community environmental stewards. Many of these projects have been to protect persons of all ages from environmental hazards. Recipients of these competitive grants were non-governmental ageing organizations as well as local health and environment agencies. For example, the Maryland-based program, Legacy Institute for the Environment (LIFE), was launched with EPA funds. Now in its fifth year, the Institute provides participants with information and insights into the complex environmental issues and challenges facing the fragile Chesapeake Bay ecosystem, and strategies for environmental stewardship. LIFE graduates are environmental ambassadors and teach children from preschool through high school about the health of the local ecosystem and its importance to their well-being. These graduates also rescued environmental organizations by taking on volunteer leadership roles.

Two recent grants focus on the built environment and getting elders involved in local planning. The University of Maine’s Center on Aging has spearheaded the Encore Leadership Corps (ENCOrps). This program focuses on environmental stewardship, grassroots leadership, and community development. Its mission is to give participants the necessary skills, knowledge and guidance to make positive changes in their communities. Participants also learn about smart growth, a planning tool that emphasizes making decisions that protect and improve the quality of life for all community residents.

Portland State University also received a grant to demonstrate the benefits of green streets for active aging. The pilot project builds upon their groundbreaking work in the area of green streets and active living by demonstrating how green streets or sustainable streets contribute to the well-being of a community, including the environment and economy as well as the physical and mental health of older and younger adults.

EPA also supported Generations United to demonstrate environmental activities in intergenerational entities. Working with a leader in the intergenerational field, Generations United prepared a guidebook entitled *Generations United for Environmental Awareness and Action*. Tricycle Gardens started as a community garden and later expanded to numerous neighborhoods in Richmond, Virginia. The project engaged intergenerational teams to use a non-chemical method of getting rid of pests, called Integrated Pest Management or IPM.

**Rachel Carson Sense of Wonder Contest**

Since 2007, the EPA, Generations United, the Rachel Carson Council, Inc., and this year the Dance Exchange, have held a poetry, essay, photo and dance contest. This intergenerational contest solicits entries that best express the “Sense of Wonder” that you feel for the sea, the night sky, forests, birds, wildlife, and all that is beautiful to your eyes. We know that by sharing this love of nature with a child and others around us, we celebrate a prescient leader of the environmental movement. We also instill a sense of responsibility to protect the earth and enjoy nature. When we teach our eyes and ears and senses to focus on the wonders of nature, we open ourselves to the wonders around us.

For climate change—we are in this together. Together we can change the way we build our communities. We must ensure they are built smart and sustainable.

We must draw from those with wisdom, experience, perseverance to leave a legacy—an environment—that is worthy of our inheritance.

And in the words of Chief Seattle, born in the late 1700s:

> Whatever befalls the Earth befalls the people of the Earth. Man did not weave the web of life; he is merely a strand in it.

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NOTES


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