Towards a Better Integration of Global Health and Biodiversity in the New Sustainable Development Goals Beyond Rio+20

Etienne V. Langlois,1,2 Kathryn Campbell,3 Anne-Hélène Prieur-Richard,4,5 William B. Karesh,6,7 and Peter Daszak5,6

1Research Center of the University of Montreal Hospital Center (CRCHUM), Montreal, Canada
2School of Public Health, University of Montreal, Montreal, Canada
3Secretariat of the Convention on Biological Diversity, Montreal, Canada
4DIVERSITAS, c/o Muséum National d’Histoire Naturelle (MNHN), Paris, France
5DIVERSITAS ecoHEALTH Cross-cutting Network, New York, NY 10001
6EcoHealth Alliance, 460 West 34th Street, 17th Floor, New York, NY 10001
7International Union for Conservation of Nature (IUCN) Species Survival Commission Wildlife Health Specialist Group, New York, NY

Abstract: In June 2012, Brazil hosted Rio+20, the United Nations Conference on Sustainable Development (UNCSD) marking the 20th anniversary of the 1992 Earth Summit. The Rio+20 outcome document entitled The future we want provides general guidance to shape sustainable development policies, but fell short of providing legally binding agreements or pragmatic goals. Negotiators agreed to develop a process for the establishment of new Sustainable Development Goals (SDGs), building upon the Millennium Development Goals, and setting the foundation for the post-2015 UN development agenda. Our objective is to argue that discussions beyond Rio+20 and toward the adoption of SDGs offer a critical opportunity to re-assess the major challenges for global health and sustainable development. There is an urgent need to translate the general aspirations put forth by Rio+20 into concrete health outcomes and greater health equity. The way toward the post-2015 SDGs will likely be more effective if it highlights the full gamut of linkages between ecosystem processes, anthropogenic environmental changes (climate change, biodiversity loss, and land use), socio-economic changes, and global health. Negotiations beyond Rio+20 should strongly acknowledge the global health benefits of biodiversity protection and climate change mitigation and adaptation strategies, which reduce diseases of poverty and protect the health of the most vulnerable. We argue that health and ecosystems are inextricably linked to all development sectors and that health should remain a critical priority for the upcoming SDGs in the context of global environmental change.

Keywords: biodiversity, global health, sustainable development, EcoHealth, policy, ecosystem services

Some 50,000 delegates and 193 States were present in Brazil from June 20–22, 2012 for Rio+20, the United Nations Conference on Sustainable Development (UNCSD) marking the 20th anniversary of the 1992 UN Conference on Environment and Development and the 10th anniversary of the World Summit on Sustainable Development (WSSD) in Johannesburg, 2002. Although Rio+20 negotiators have

Published online: 22 September 2012
succeeded in adopting a common declaration entitled *The future we want* (Rio+20 outcome document) laying out universal sustainable development principles and aspirations, the summit has been criticized for its lack of bold actions and a dearth of pragmatic engagements or precise goals. Rio+20 provided no legally binding agreements, and countries only adopted voluntary commitments toward meeting their own sustainable development targets. Ban Ki-moon, the U.N. Secretary-General, even conveyed that “Our efforts have not lived up to the measure of the challenge”.

The objectives of Rio+20 Conference were to: (1) Secure renewed political commitment for sustainable development; (2) Assess the progress to date; (3) Ascertain the remaining gaps in the implementation of the outcomes of the major summits on sustainable development; and (4) Address new and emerging challenges. The Rio+20 outcome document *The future we want* provides general guidance to shape policies promoting global prosperity, reducing poverty and advancing social equity, and environmental protection (UN 2012a). Negotiators also agreed to set up a process for the establishment of new Sustainable Development Goals (SDGs), building upon the Millennium Development Goals (MDGs), and setting the foundation for the post-2015 UN development agenda.

Nevertheless, Rio+20 fell short of promoting a balanced integration of the social, economic, and environmental pillars of sustainable development. The Conference focused on two themes: (1) the green economy in the context of sustainable development and poverty eradication; and (2) the institutional framework for sustainable development. The economic aspect of development is thus preponderant in *The future we want*, at the expense of a comprehensive recognition of social and environmental matters. Rio+20 failed to transform the actual UN environmental program into a specialized agency, although did approve steps to strengthen it. Key global health issues related to global environmental change were omitted from the outcomes document. Reproductive rights were excluded from the final document, albeit inclusion in the draft submitted for negotiations during Rio+20. A reproductive rights approach to health and development was eliminated owing to objections lead by the G77 group and The Holy See, as a permanent nonmember state of the UN, and thus ideological reasons sidelined the evidenced-based ramifications for sustainability.

The draft Rio+20 outcome document that was released for consultation omitted health as a cross-sectoral priority issue for sustainable development (UN 2012b). The global health community intensely advocated and succeeded in integrating public health, while complimentary lobbying resulted in some limited recognition of the inter-linkages between health, biodiversity, and ecosystems. Although the importance of universal health coverage and pledges for health systems strengthening is recognized in *The future we want*, it omits concrete actions on sustainable development and health. In particular, pragmatic initiatives linking health and other environment-related components of sustainable development (e.g., energy production, biodiversity changes, land and water management, climate-change mitigation measures) are absent. Rio+20 thus missed the opportunity to put forth effective interventions in light of the first principle of the 1992 *Rio Declaration on Environment and Development*, which stated that “human beings are at the center of concern for sustainable development. They are entitled to a healthy and productive life in harmony with nature” (UN 1992). We propose that discussions beyond Rio+20 and toward the adoption of SDGs offer a critical opportunity to re-assess the major challenges for human health that anthropogenic environmental changes, and changes to our global socioeconomic systems pose, within the context of sustainable development.

**Health and Sustainable Development**

Sustainable development efforts over the last 20 years have not resulted in health equity, albeit a goal of global health. Marginalized, migrant, and poor populations carry a heavy burden of morbidity and mortality, along with women and children under 5 years of age. Maternal mortality remains the world’s worst health inequity, as 99% of maternal deaths still occur in developing countries (WHO 2012a). Furthermore, the MDGs target of reducing mortality rates for children under five by two-thirds and the maternal mortality ratio by three-quarters by 2015 are not likely to be achieved (Lalonde 2010). The impacts of this are far-reaching and go beyond the poor, as whole societies are adversely affected by inequality. Scientific evidence clearly demonstrates relationships between inequality and poor health and social problems at country-, state-, and city-levels. Not only are social stratification and socioeconomic inequalities closely related to adverse physical and mental health, but the overall burden is much higher for a wider range of social ills than previously predicted (Wilkinson and Pickett 2010). This recent evidence corroborates the rationale linking equity to the achievement of well-being of
individuals, communities, and societies (Sen 1999). In this context, it is imperative that there is further strengthening of global efforts to implement and scale-up scientifically sound and effective interventions to decrease health inequities.

Health and sustainable development are inextricably linked. Poor health hinders development, as malaria alone is estimated to have slowed economic growth by up to 1.3% each year in African countries where a high proportion of the population lives in regions of Plasmodium falciparum transmission (Sachs and Malaney 2002). In addition to infectious disease threats, chronic non-communicable diseases (NCDs) are now the leading cause of mortality worldwide, and low- and middle-income countries bear nearly 80% of the burden from cardiovascular diseases, cancer, type 2 diabetes, and chronic respiratory diseases (Nabel et al. 2009). In 2030, such diseases are projected to claim the lives of 52 million people, and NCDs are recognized as a major challenge to sustainable development in the twenty-first century (WHO 2011).

The future we want links public health with safe drinking water and proper sanitation, and recognizes inter alia the major burden of infectious diseases and NCDs, as well as the challenges related to health financing, health workforce, access to medicines, vaccines, and medical technologies (UN 2012a). While these global health issues were mentioned during Rio+20, there is an urgent need to translate the general principles into concrete health outcomes and greater health equity. The way toward the post-2015 SDGs will likely be more effective if it highlights the full gamut of linkages between sustainable development, global environmental change, health, and well-being.

To respond to this challenge, during these past 10 years, the scientific community has strengthened its knowledge on the linkages between ecosystem processes, anthropogenic changes (e.g., climate change, biodiversity loss, and land-use change), socio-economic changes, and human health and well-being. This was made possible through the development of more integrated research, linking together medical, veterinary, natural, economic, and social sciences, as well as working at multiple scales (local, regional, and global scales). This new active field of research was supported by the emergence of successful international endeavors such as the One Health initiative (http://www.onehealthinitiative.com), the DIVERSITAS ecoHEALTH project (http://www.diversitas-international.org/ecohealth), organizations such as EcoHealth Alliance (http://www.ecohealthalliance.org), and the International Association for Ecology and Health (http://www.ecohealth.net). Although many unanswered questions remain, outcomes of this research show the way toward more sustainable ecological, economic, and social development outcomes including global health equity. At Rio+20, with the launch of the new scientific program “Future Earth” (http://www.icsu.org/future-earth), this type of research has been recognized as the way forward to provide relevant science for decision making processes on sustainability-related issues.

**HEALTH AND BIODIVERSITY NEXUS**

Scientific evidence shows biodiversity is fundamental for human health and well-being, both of which depend on ecosystem services supported by biodiversity (Chivian and Bernstein 2008; Sala et al. 2009). Health and biodiversity are linked in a series of important ways. Firstly, the erosion of biodiversity reduces nutritional security, medicinal resources, and the benefits to physical and mental health from contact with nature (Cecily Maller et al. 2008; Kuo 2010; Reid et al. 2006). Secondly, biodiversity underpins the functioning of the ecosystems on which we depend for our food and fresh water; aids in regulating climate, floods, and diseases; provides recreational benefits and offers aesthetic and spiritual enrichment. Biodiversity also contributes to local livelihoods, medicines (traditional and modern), and economic development (WHO 2005).

Thirdly, there is clear evidence that regions with high wildlife biodiversity also harbor high pathogen diversity, and represent a risk to global health (Jones et al. 2008; Keesing et al. 2010; Randolph and Dobson 2012). Thus, the risk of new pandemics such as SARS, avian influenza and Ebola is increased by anthropogenic pressure on the environment which brings humans, livestock, and wildlife into contact in these emerging disease “hotspots”. Recognizing that the conservation of the Earth’s biological resources is vital to humanity’s economic and social development, the United Nation’s Convention on Biological Diversity (CBD) was opened for signature at the 1992 Summit. Despite global efforts, the world missed the 2010 biodiversity target, which aimed at a significant reduction in the rate of biodiversity loss by 2010.

The current rate of biodiversity loss will likely hamper efforts to meet some of the MDGs, especially those related to health, by increasing the vulnerability of the poor and reducing their options for sustainable development. It is
against this backdrop that the Parties to the CBD adopted in October 2010 the Strategic Plan for Biodiversity 2011–2020 and the 20 Aichi Biodiversity Targets to encourage conservation of biodiversity over the next decade by all countries and stakeholders (CBD 2010). All five of the Strategic Plan goals and many of the Aichi Targets can be achieved by actions that focus on both the health of people and biodiversity. For example, Target 14 states that: “By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.”

The Rio+20 outcome document identifies biodiversity as one of the thematic/cross-sectoral issues and acknowledges the vital role of biodiversity in maintaining “ecosystems that provide essential services, which are critical foundations for sustainable development and human well-being”. The negotiators also agreed that the global loss of biodiversity and ecosystem degradation undermines sustainable development and “affects the health of the rural poor and of people worldwide, including present and future generations”. In light of this, Governments at Rio+20 affirmed the importance of implementing the Strategic Plan for Biodiversity and reiterated their commitment to achieving the objectives of the CBD.

There is a new enabling environment and an opportunity to respond swiftly and boldly to the call for further collaboration and synergies between the public health community and all three of the Rio Conventions, including the CBD, in order to further understand the human health and global environmental change inter-linkages and strengthen the integration of new findings into policy and actions for all people and the planet (WHO 2012b).

**Global Health, Emerging Diseases, Climate Change, and the Green Economy**

Climate change is a key threat to global health by its potential to alter patterns of disease, water, and food insecurity, affect shelter and human settlement vulnerability, produce extreme climatic events, and promote population migration (Costello et al. 2009). Strategies to reduce climate change—including greenhouse gas mitigation—have clear health benefits. It is imperative that green growth strategies in various sectors such as agriculture, transport, housing, and energy take into consideration public health co-benefits, protection against infectious diseases and chronic NCDs, biodiversity conservation and sustainable use options. Negotiations leading to the adoption of SDGs should strongly acknowledge the global health benefits of climate change mitigation and adaptation strategies inherent to the green economy, which reduce diseases of poverty and protect the health of the most vulnerable (Hosking et al. 2011).

One way to incorporate global health is for the new SDGs to insure that health impact assessments (HIA) are included in sustainable development policies. The need to implement HIA in various sectoral programs and policies is not explicitly mentioned in The future we want. To address the issue of emerging pandemics, the SDGs should account for HIA of large-scale development projects that are some of the drivers of emerging diseases. For example, projects proposed by the extractive industry or large agricultural developments have the potential to bring people and livestock into close contact with wildlife that harbor potential new pathogens. Insuring that HIA have an emerging infectious disease risk assessment and mitigation strategies would help alleviate this threat.

Rio+20 appropriately addressed environmental inequity. Nevertheless, this initiative should not be independent of attention provided to environmental health inequalities, which are not explicitly mentioned in The future we want. Poor environmental quality contributes to around 25% of all preventable ill-health in the world, the majority of which is poverty related (WHO 2002). Links between physical environment and human health cover waterborne toxins, such as arsenic or lead, often introduced by industrial waste, or respiratory illnesses resulting from air pollution from excessive use of fossil fuels and burning biomass indoors. WHO estimates that reductions in air, water, and chemical pollution can prevent up to one quarter of deaths and disease annually across the world, and even more in developing countries (Prüss-Üstün and Corvalán 2006).

**The “Future We Want” Shall Be Healthy and Equitable**

Negotiations beyond Rio+20 represent an historic opportunity to establish the foundation of the post-2015 sustainable development era. Health should remain a critical priority for the upcoming SDGs in the context of global environmental change, which would lead to recognition of...
the inter-relatedness of noncommunicable diseases, maternal and child health, voluntary fertility choices of families (Sachs 2012), emerging infectious diseases, the pandemic threat and mental health issues with climate change, land degradation, and biodiversity changes. There is a view among some development experts that the next round of universal goals should focus on agriculture and energy, hence the important focus on the green economy provided by Rio+20. Our vision is that health and ecosystems are inextricably linked to all development sectors and that the inter-linkages should be recognized as a cross-sectoral issue within the SDGs. There is an urgent need for better integration of health and sustainable development issues, notably through “health in all policies” or “whole of society” approaches (Haines et al. 2012). The global health and ecohealth communities are ready and willing to take part in the discussions and negotiations to develop the SDGs and will pay particular attention to these foundational issues in the sustainable development arena. This represents an historic chance to rethink the role of human and ecosystem health, and we owe it to future generations to insure that “the future we want” shall be healthy and equitable.

REFERENCES


Maller CMT, St Leger L, Henderson-Wilson C, Pryor A, Prosser L, Moore M (2008) Healthy parks, healthy people: a review of relevant literature, 2nd ed., Deakin University, Faculty of Health, Medicine, Nursing and Behavioural Sciences, School of Health and Social Development, Burwood, Melbourne


UN (2012a) The Future We Want. Outcome of the Conference. Rio de Janeiro, Brazil: UNCSD

UN (2012b) The Future We Want: Zero draft document of the outcome of the UNCSD. Rio de Janeiro, Brazil: UNCSD


