WHO/PAHO Collaborating Centers Meeting on

Sustainable Development and Environmental Health

Workshop on Health and Development in the Context of Rio+20

Research Triangle Park, NC

24-26 October 2011

Pan American Health Organization

Regional Office of the World Health Organization

NATIONAL INSTITUTES OF HEALTH

NIEHS National Institute of Environmental Health Sciences

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Sustainable Development and Environmental Health Area (SDE)

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Acronyms

CC	Collaborating Centers
CDC	Centers for Disease Control and Prevention
COPD	Chronic Obstructive Pulmonary Disease
ECLAC	Economic Commission for Latin America and the Caribbean
EDC	Educational Development Center
INSP	Instituto Nacional de Salud Pública, México
HIA	Health Impact Assessments
MDGs	Millennium Development Goals
NIEHS	National Institute of Environmental Health Science
PAHO	Pan American Health Organization
SDE	Sustainable Development and Environmental Health Area
SDH	Social Determinants of Health
UN	United Nations
UNCSD	United Nations Conference on Sustainable Development
USA	United States of America
WHO	World Health Organization
WHOCC	World Health Organization Collaborating Centers

Preface

"Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs."

Sustainable development provides an approach to making better decisions on a wide range of issues that affect the lives of people and communities worldwide. A focus on sustainable development implies looking for ways to ensure a strong, healthy and fair society. This means meeting the needs of all population groups and communities, promoting social cohesion and inclusion, improving quality of life, and creating equal opportunities, while also avoiding environmental degradation and harmful exposures now and over the long term.

Countries in our Region are looking for ways to promote economic growth that is sustainable in terms of natural resources and social systems, but also human health. Unfortunately, health is often left out, or discounted, in discussions of sustainable development. The impact of health on development, as well as the long-term effects of sustainability on human health are both significant and justify health being at the center of these discussions.

As our global population increases and natural resources become more scarce, we must continue to work to ensure that health is not left out of the equation and, in fact, is given a high priority. The achievement of sustainable development requires the integration of social, environment, economic and health components at all levels. This is facilitated by continuous dialogue and action in global partnership focusing on key sustainable development issues; it also requires a new paradigm for fully integrating health as an intrinsic part of social, environmental and economic processes. These dimensions of sustainable development should be understood as interactive and intrinsically linked.

The first UN Conference on Environment and Development, held in Rio de Janeiro, Brazil, in 1992, formulated an agenda for environment and development in the 21st Century, commonly known as Agenda 21. This key document promoted a roadmap that has since been at the heart of national and local development plans throughout Latin America and the Caribbean. The 1992 UN Conference also marked the first time that the main stakeholders and national leaders were mobilized and legitimized their participation in the sustainable development process.

In the past two decades, sustainable development has been incorporated into many UN declarations and has become an integral part of the international dialogue. While often complex, sustainable development has been adopted and implemented by institutions and organizations working in the economic, social, health, and environmental sectors worldwide. The recent WHO World Conference on the Social Determinants of Health (SDH), held in Rio de Janeiro, Brazil, October 2011, resulted in a political declaration that is relevant to work in our Region. In recognizing the importance of developing policies to achieve both sustainable development and health equity through action on the SDH, this declaration provides a renewed mandate for integrating health into sustainable development.

The upcoming UN Conference on Sustainable Development, also known as Rio+20, offers a great opportunity for integrated action. It can help to secure and renew political commitment for sustainable development, as well as serve as a forum to address new and emerging challenges. It will also allow for the assessment of the progress made to date and of the remaining gaps in the implementation of the outcomes of the previous major summits on sustainable development.

To confront the challenges of the 21st Century and the new paradigm for sustainable development, governments and international institutions must take the lead. PAHO and its collaborating centers can support and catalyze innovative, intersectoral and strategic efforts to reduce risks to health and promote healthy environments as a substantial and essential element to sustainable development.

This workshop, carried out as part of the Collaborating Centers meeting agenda held in October 2011 with the National Institute of Environmental Health Sciences (NIEHS), has been a key part of our institutions' efforts to develop the new paradigm by bringing together our science, information and actions, with the view to protect public health and improve people's lives around the world.

Luiz A. C. Galvão
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National Institute of Environmental Health Sciences (NIEHS)

Summary of Presentations[1]

Introduction on the United Nations Conference on Sustainable Development (UNCSD) in Rio de Janeiro, Brazil in 2012

Pillars of Sustainable Development: Opportunities for Rio+20

Carlos Corvalán, Senior Advisor, Risk Assessment and Global Environmental Change, PAHO/WHO

The United Nations defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The concept clearly outlines three pillars of sustainable development: social, environmental, and economic. Health is often incorporated within the social dimension; however, this poses a challenge for effective action and needs to be reconsidered.

Since 1992, Agenda 21 has served as a roadmap for institutions and governments to design and implement sustainable development plans at the national level. Chapter 6, in particular, deals with health and its mandates. It emphasizes the need to meet primary health care needs (particularly in rural areas), to control communicable diseases, to protect vulnerable groups, to address urban health challenges, and to reduce health risks from environmental pollution and hazards. Nevertheless, emerging issues such as non-communicable diseases and the health consequences of climate and environmental changes are not clearly incorporated.

The World Health Organization (WHO) and other agencies have attempted to address this concern through various commissions that fit under the established pillars of sustainable development while also responding to health issues. Examples include the Commission on Health and Environment (1992), the Commission on Macro Economics and Health (2001), and more recently, the Commission on the Social Determinants of Health (2005).

Current situation of sustainable development

After two decades of work in the area of sustainable development, much has been achieved; however, much remains to be done. Currently, multiple global crises affect countries worldwide. On the social pillar, poverty, food insecurity and inequalities have increased in many countries. On the environmental pillar, climate and ecosystem changes threaten global environmental sustainability. On the economic pillar, financial and energy crises adversely affect national economic development in many Regions. While also impacted by these crises, the Region of the Americas has experienced important advances in the area of sustainable development that should be highlighted, such as:

- Increased awareness about health rights and the need for a balanced environment;
- Better conceptual, methodological, and measurements tools to provide information about the complex environmental interactions;

1 Presentations are fully available at: www.paho.org/sde/collaborating-centers

- New and more effective legal instruments;
- Ownership of the topic by civil society and academia;
- New technological developments, which are people and environment friendly.

Nevertheless, it is important to address the current gaps in sustainable development and their implications for global and population health. These include the:

- Continued loss of natural resources and biodiversity;
- Ecosystem damage beyond their recovery capacity;
- Prevalent poverty and inequalities;
- Unorganized urban growth;
- Insufficient adoption of green technologies;
- Fragmented, inconsistent, a-synchronic responses by the relevant sectors.

Rio+20: Opportunity for integrated action

Currently, there are several opportunities to advance the work on issues related to health, such as the upcoming United Nations Conference on Sustainable Development, known as Rio+20, to be held in Rio de Janeiro, Brazil in June 2012. PAHO and its regional partners have very actively contributed to the activities leading up to the Rio+20 meeting through the participation in and establishment of expert committees, the preparation of reports and plans of action, the provision of technical assistance to Ministries of Health in preparation for their participation in the meeting, and the collaboration with other stakeholders in processes related to the Rio+20 meeting.

The Rio+20 Conference offers a great opportunity for integrated action. It can help secure and renew political commitment for sustainable development, as well as serve as a forum to address new and emerging challenges. It will also allow for the assessment of the progress made to date and of the remaining gaps in the implementation of the outcomes of the previous major summits on sustainable development.

Advancing the green economy

Two key issues will be addressed in the Rio+20 meeting: Green economy in the context of sustainable development and poverty eradication; and the institutional framework for sustainable development. As defined by the UNEP (2011), a green economy is one that results in "improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities." It is a valuable approach to mitigate climate change, as it promotes alternatives to the use of fossil fuels through the adoption of clean energy and low carbon technologies. The green economy generates worldwide interest given widespread concerns related to developing countries' capacities and resource availability to implement green technologies.

Moving forward

WHO's World Conference on the Social Determinants of Health (SDH) held in Rio de Janeiro, Brazil, resulted in a political declaration on the SDH, which established an important link to the work developed in our Region by recognizing the importance of developing policies to achieve both sustainable development and health equity through action on the SDH.

In order to advance the field of sustainable development and health in the Region, it is key to define a new paradigm for fully integrating health, as an intrinsic part of social, environmental, and economic processes (see Figure 1). These dimensions of sustainable development should also be understood as interactive and intrinsically linked.

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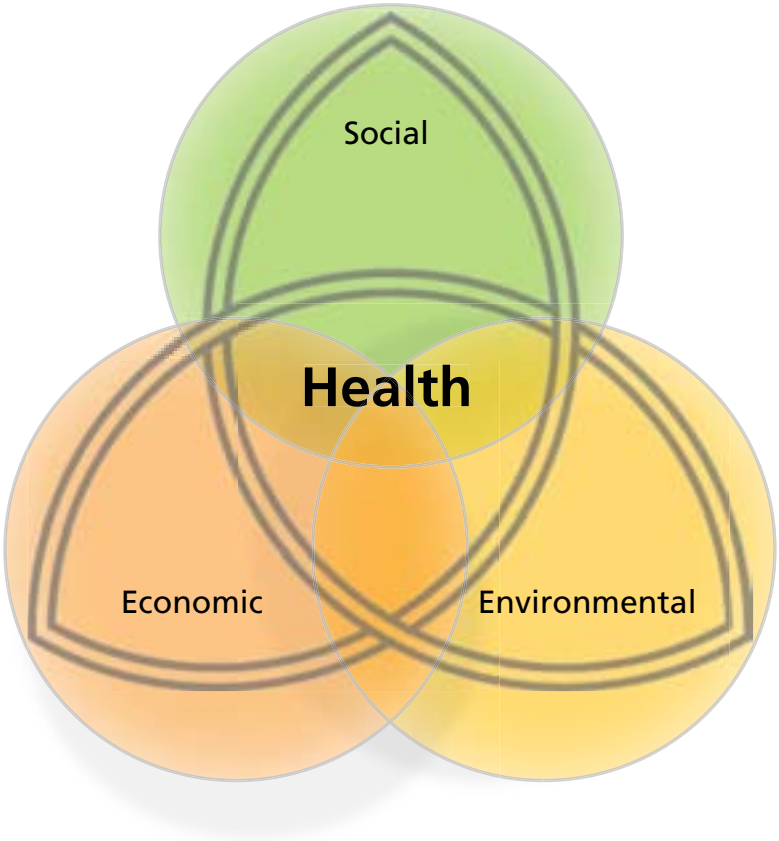
Agenda 21: http://www.un.org/esa/dsd/agenda21/
UNEP (2011): http://www.unep.org/greeneconomy/GreenEconomyReport/tabid/29846/Default.aspx

Figure 1. Integration of the Social, Economic, and Environmental pillars, highlighting Health at the center.



Preparatory National Process to Rio+20

Guilherme Franco Netto, Director of the Environmental and Worker's Health Surveillance Department, Ministry of Health, Brazil

The proposal for the organization of the Rio+20 Conference was formalized by former Brazilian President Luis Inácio Lula da Silva to the United Nations Secretariat in 2007. It was later adopted by the UN General Assembly under Resolution 64/236. While the event's coordination was assigned to the UN General Sub-Secretary to Economic and Social Affairs, its presidency remained with the Brazilian government.

The meeting aims to bring together high-level government representatives from all Regions worldwide, along with representatives from civil society. It is expected that up to 50,000 participants will attend the event, which will be held in Rio de Janeiro, Brazil in June 2012.

Brazil has been selected for this important conference based on its consistent and solid advances during the past two decades on issues related to global peace, democracy, development, and the environment. The country has also been recognized for its efforts to reduce hunger and misery, which has resulted in a sustainable reduction of social inequities. Thus, Brazil established itself in the sustainable development global scenario, as an important actor who also had the political will to host the Rio+20 Conference.

On July 2011, through the National Decree 7495, current Brazilian President Dilma Roussef, established a National Commission to support the organization of the UN Sustainable Development Conference (Rio+20). This National Commission also has the mandate to promote dialogue among governmental and civil society actors in order to articulate the Brazilian contribution to the event.

This initiative posed a particular challenge to the Brazilian health sector as it reflected on its role and approaches to the issue of sustainable development. As a result, the Brazilian government has submitted to the UN a document to be presented in the Rio+20 meeting and which outlines the health sector's position and perspectives on relevant sustainable development topics, challenges and on how to move forward. This document highlights twenty-four new and emerging challenges to sustainable development, with health being a prominent one among them. A Working Group was established within the MOH to define its position and proposals to address these challenges within the framework of sustainable development.

The document includes an overview of the current national status on issues such as health and environmental health. In relation to health, it points out that, despite great advances in health outcomes, such as sharp reductions on child mortality and malnutrition, Brazil still faces many challenges, such as the need to conduct a health sector financial reform; adequately adapt its strategies to epidemiological, demographic and nutritional transitions; reduce the high frequency of C-sections, illegal abortions and pre-term births; and address persistent health inequalities that particularly affect vulnerable population groups.

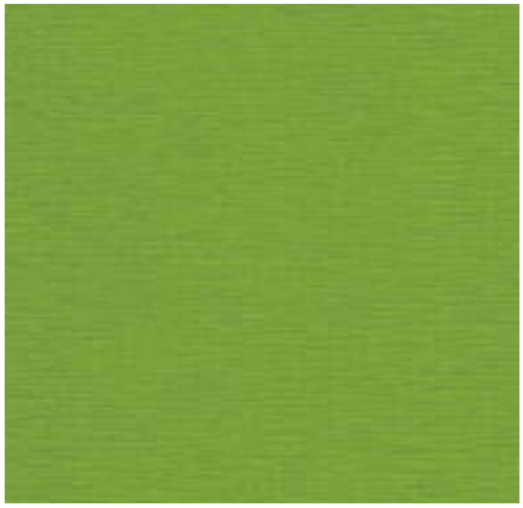
As the document describes, Brazil has made important progress in environmental health over the past two decades. It has developed a National Environmental Health Surveillance System and established academic and social networks that have contributed to knowledge and technology advances, with strong civil society participation. The country has organized two major events in the field: the First National Environmental Health Conference (2009), and the First Brazilian Symposium on Environmental Health (2010). Recently, it has also hosted the WHO World Conference on the Social Determinants of Health.

The issue of Green Economy is also addressed in the document. The authors maintain that the current global model of economic expansion is not sustainable, given its dependency on fossil fuel

and excessive exploration of natural resources. The document proposes the adoption of more inclusive and fair models of economic expansion and distribution of wealth, as well as the establishment of broad social promotion and protection systems. The green economy is proposed as an instrument to achieve these goals and to mobilize concrete initiatives and policies, given its potential to integrate economic and social development with environmental protection.

Lastly, the document describes Brazil's proposal to move sustainable development forward worldwide. It includes the creation of a Global Socio-Environmental Protection Program aimed at mobilizing resources to address extreme poverty and promoting actions to ensure environmental quality, food security and access to clean water for all. It also proposes the adoption of a Global Agreement for Sustainable Production and Consumption and of an International Green Protocol for the Finance Sector, among other recommendations. The document highlights the need to define a new and more efficient financial institutional frame, in order to advance the global governance reform and the effective participation of the developing countries in multilateral forums. It further emphasizes that the recommendations and initiatives resulting from the Rio+20 must take into account countries' capacities to implement them, such as adequate financial and technological conditions.

Rio+20 is a unique opportunity to reformulate current economic development models and to design a long-term and sustainable alternative for the international crisis; one that takes into account the complexity of economic, social and environmental factors and fully incorporates social development and environmental protection concerns.



Session 1

Environmental, Occupational, and Urban Challenges

CDC's ENVIRONMENTAL PUBLIC HEALTH PRIORITIES

Christopher Portier, Director, National Center for Environmental Health, Agency for Toxic Substances and Disease Registry

Sustainable development is a complex interaction of various systems (social, economic, environmental, etc.). As such, it should be studied from a systems perspective, one that, when properly implemented, can help to identify how changes in one or more systems will impact population health. This is an important step to help us determine how to live in a sustainable way.

Looking at cities and how they function can help to uncover ways to be sustainable, for example, by understanding what aspects of cities contribute to health issues and which ones can be improved. Energy policies are another example of systems that affect health. Making energy choices that improve human health, the environment, and economic development is possible if we understand the complex interplay between systems for energy delivery and sustainable and healthy human environments.

Healthy housing is an important aspect of sustainable development and it has an important impact on public health. Most people spend an average of 50% or more of every day inside their homes. With that in mind, CDC has developed the Healthy Homes Program, which is a coordinated, comprehensive, and holistic approach to preventing diseases and injuries that result from housing-related hazards and deficiencies.

Programs such as the Healthy Housing Program highlight the importance of common community designs, as those can either promote or harm human health. Community design needs to take into account the various interconnecting aspects that are present in the community such as land use, automobile dependency and socio-economic processes. Health Impact Assessments (HIA) can contribute to efficient community designs. CDC is currently building capacity for HIA in land-use and transportation sectors.

One key aspect to implementing sustainable development is to prove that interventions are cost-effective (in terms of health, environment, etc.) and sustainable. This includes demonstrating the return on investments made in prevention efforts. For example, States funded by CDC to implement comprehensive asthma control programs showed a 10% decline in hospitalization rate from asthma between 2000 and 2007, which translated into healthcare cost savings.

The ability to track data is key in such initiatives. However, it requires setting up a framework and structure that will allow for the identification of hazards, measurement of exposures, and follow-up of population health. One example of such an effort is the National Environmental Public Health Tracking Network that consists of:

- the Tracking Network: a system of integrated health, exposure, and hazard information and data from national, state, and city sources;
- the know-how of trained public health professionals, who develop better ways to make information accessible on the Tracking Network; and
- the information technology, which supports the Tracking Network.

Surveillance and tracking programs help to develop the argument for investments in prevention and sustainable development initiatives by demonstrating the links between certain factors and exposures and long term health. The U.S. National Biomonitoring Program, for example, assesses and monitors the nutritional status of the U.S. population every two years by measuring 58

biochemical indicators. This program has helped to improve measurements of nutritional status among the U.S. population.

There are four key areas for strategic initiatives to improve environmental health and communities:

1. **Sustainable Environments for Human Health** through the implementation of core activities of Environmental Public Health:

   Initiative 1: Identify the bounds of a sustainable, healthy environment for humans.

   Initiative 2: Build an international partnership focused on creating sustainable, healthy environments, such as a Global Conference of Mayors.

   Initiative 3: Compare health risks and set priorities to create the largest number of sustainable, healthy environments possible. This includes the creation of certification programs and the establishment of coalitions to address the most pressing needs (water and sanitation, food quality, etc.).

   Initiative 4: Educate and train global public health practitioners, in order to instill Environmental Public Health ideas and priorities into the global public health community.

2. **Evidence-Based Decision Making**

   Initiative 1: Develop better metrics for quantifying risks and comparing them to benefits. This should incorporate semi-quantitative analyses and combine aggregate and cumulative risk assessment to better set priorities.

   Initiative 2: Harmonization of definitions and methods.

   Initiative 3: Improve priority setting to address issues of effectiveness, burden of disease and cost of intervention.

   Initiative 4: Provide high level risk assessment advice on a global basis on issues of multinational concern.

3. **Public health emergency response**

It is important to prepare for the fact that emergencies will occur, that we will have to respond, and that it might have to be at a multinational level, when the emergency is large. Sustainable development can help to mitigate devastating natural events.

4. **Emerging issues**

Improving our capacity to rapidly identify new hazards and emerging issues is key to sustainability. These could lead to the emergence of new sciences and leadership opportunities for Collaborating Centers.

PAHO/WHO and the Collaborating Centers can act on these key strategic areas and initiatives outlined above and, by doing so, can help to improve health, the environment and sustainable development efforts throughout the Region.

GLOBAL ENVIRONMENT AND HEALTH

Jonathan Patz, Professor, Center for Sustainability and the Global Environment, and Director, Global Health Institute, University of Wisconsin

Main topic areas of global environmental health involve climate change, land use change and loss of biodiversity. This presentation will first address climate change health risks, as well as potential co-benefits and unintended consequences of adaptation and mitigation responses to climate change; and second, health implications of land use and global ecological change.

Population health depends on multiple levels of human behavior and environmental conditions. These range from personal and cultural influences on individuals and communities, to environmental exposures from the household, to the neighborhood, to city, nation and finally earth systems. These relationships are summarized in a "Health Map" (developed by Barton and Grant, 2006) that shows these relationships and the importance of considering every level for comprehensive health assessments. It takes into account that human activity impacts the local natural environment (e.g. air pollution) and the global ecosystem (greenhouse emissions). It also affects local economic efficiency and people's lifestyle choices (the likelihood of walking or driving). Lifestyle changes may also impact on the pattern of social networks. The health map can help distinguish these processes and contribute to sustainability and health impact assessments.

Climate change risks

With the exception of continued debate in the US, the science of climate change is well accepted worldwide. It is known that the countries more affected by climate change are also the least responsible for it, which highlights the ethical implications of the climate change crisis.

Climate change can affect human health in a variety of ways. Increased air pollution results in higher incidence of respiratory diseases, such as COPD and asthma; habitat changes have an impact in climate- sensitive diseases, such as malaria and dengue; changes in water and food supply can result in increased rates of malnutrition and diarrhea. Forced migration, human conflicts and increased incidence of infectious disease are among some of other consequences of climate change (Coldwell and Patz, 1998).

Heatwaves have claimed many lives worldwide. A study in Milwaukee, US, (Li *et al.* 2011) demonstrated that heatwave-related morbidity was particularly linked to heat-sensitive illnesses involving: endocrine, genitourinary and respiratory illnesses; the study also shown a marked increase of morbidity related to injuries and accidents (i.e. attempted suicides).

In 2010, Delhi, India, experienced the hottest summer ever recorded. Warming summers also threaten public health by adversely affecting crops and subsequent risk for hunger. According to projections, the increased warming of summers world-wide could double the number of people at risk for hunger by the middle of the century (Battisi and Naylor, 2009). This places climate change as a public health issue that requires action to protect the most vulnerable populations.

According to the Center for Water & Health of the Johns Hopkins University Bloomberg School of Public Health, 1.2 trillion gallon of sewage-contaminated stormwater overflow each year in the US; these are called "combined sewage overflow" (CSO) events. A study of E. coli levels in the rivers that run into the Milwaukee harbor in Lake Michigan also demonstrated that nearby beaches may be impacted by this widespread pollution from the watershed, as well as from localized runoff at the beach itself.

Climate change adaptation and mitigation

A growing number of studies demonstrate the co-benefits of mitigating GHGs, such as the opportunities for improved population health from improved air quality and from physical fitness. According to WHO, 800,000 deaths could be prevented each year from reducing air pollution emitted when burning fossil fuels; 1.9 million deaths related to physical inactivity could also be prevented, if travel via the internal combustion engine (especially automobiles) could be achieve through green transportation options.

Some natural experiments have demonstrated the benefits of reducing car travel in urban settings. During the 1996 Olympic Games in Atlanta, traffic was reduced by 23%; as a result, ozone air pollution fell by 28% and events related to childhood asthma dropped 42% (Friedman et al. *2001)*. In Beijing, 2008, China spent $17 Billion for a "Green Olympics." It resulted in a decrease of 28% in nitrogen dioxide and of 20% of particulate matter in the atmosphere (UNEP, 2009*)*

A study in the US has tried to quantify health impacts of decreasing car trips by 20% in the Midwest region (Grabow et.al. 2011). The results predicted that approximately 500 lives would have been saved per year and 100,000s illnesses would have been avoided from resultant improvements in air quality. And if 50% of these short trips were achieved by bicycle, the fitness benefit could save another 600 lives, or a total of more than 1,100 lives saved each year.

All these studies and experiences demonstrate that there is a clear benefit of fighting global warming and great opportunities to improve health as a "co-benefit" of mitigating greenhouse gas emissions. Yet, adaptation to climate change may also have unintended consequences; they require a full Health Impact Assessment approach.

Land use and global ecological change

Patterns of land use can also impact the environment and health. Patz, Confalonieri and others (2005) summarized the health impacts of habitat changes (deforestation, road construction, stream bed alterations, etc.) within the context of the Millennium Ecosystem Assessment report. One example involved the strong relationship between deforestation of the Amazon, with the risk of malaria. (Vittor *et al.*, 2006 and 2009).

The Millennium Ecosystem Assessment, called for by the United Nations in 2000, was the largest scientific assessment conducted to date and incorporated the effort of 1360 experts from 95 countries. It addressed issues related to food, climate, water purification, disease control, soil use, etc. As part of its mandate, it identified and quantified the services in nature that benefit human health and wellbeing; these have been termed "Ecosystem Services" and "Natural capital" or essentially free services provided by nature.

Conclusion

Global climate and ecological change pose significant risks to health and the environment. Policies developed to decrease the risks, and to adapt and mitigate climate change should be studied in combination and should include root causes of disease that span many sectors, such as agriculture, energy transportation and urban planning; as such, the "Health in all Policies" approach of the WHO should become our *modus operandi.*

HEALTH IN RIO+20

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WORKER HEALTH ISSUES

Joseph T. Hughes, Jr., Chief Worker Education and Training Program, National Institute of Environmental Health Sciences

The Worker Education and Training Program (WETP) was created in 1986 by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Section 126(g). SARA authorized a competitive grants program for training in hazardous waste removal, containment, and emergency response to events involving toxic substances. The program has five primary program areas related to environmental cleaning and response:

Hazardous Waste Worker Training Program (HWWTP) – Provides model occupational safety and health training for workers who are or may be engaged in activities related to hazardous waste removal or containment or chemical emergency response.

Hazmat Disaster Preparedness Training Program (HDPTP) - Seeks to enhance the safety and health training of current hazardous materials workers and chemical responders, to train skilled response personnel, to create materials and deliver training to weapons of mass destruction response workers and to augment prevention and preparedness efforts in a wide variety of high risk settings.

Minority Worker Training Program (MWTP) – Focuses on delivering comprehensive training to disadvantaged urban youth in order to prepare them for employment in the construction and environmental cleanup fields.

Department of Energy/NIEHS Nuclear Worker Training Program (DOE/NIEHS NWTP) - Focuses on training workers engaged in environmental restoration, waste treatment and emergency response activities at sites in the Department of Energy's nuclear weapons complex.

Advanced Training Technology Program (ATT) - Focuses on the development of Advanced Technology Training (ATT) products for health and safety training of hazardous materials workers, emergency responders, and skilled support personnel.

The NIEHS is currently undergoing its strategic planning process for 2012. Issues related to global environmental health and health disparities are included under Strategic Theme # 6, and seek to address:

- Environmental justice research in partnership with communities
- Social determinants of health and health disparities
- Studying vulnerable populations
- Environmental impact on non-communicable disease in developing countries
- Impact of climate change on human health

Advancing environmental justice is a vital part of the NIEHS mission. NIEHS is firmly committed to addressing the unique needs of disadvantaged low-income and minority communities through its research and community engagement programs. The Institute works closely with affected community members to develop research approaches and interventions to reduce the health impacts of environmental exposures. NIEHS strives to ensure that research examining the role of environmental factors in human health and disease is applicable to individuals from across all racial, ethnic, and socioeconomic backgrounds and that appropriate resources are devoted to communities suffering the highest environmental health burdens.

NIEHS has a longstanding commitment to and robust history of supporting research programs that promote partnerships. Examples include support for the Breast Cancer and Environment Research Center, Centers for Children's Environmental Health, Centers for Population Health and

Health Disparities, Community-based Participatory Research and various community outreach and education programs.

The Environmental Justice (EJ) Partnerships for Communication program has been a successful interagency effort that funded 54 projects addressing a wide spectrum of environmental and occupational exposures. Over the years the EPA and the National Institute for Occupational Safety and Health (NIOSH) have partnered with NIEHS to support the projects.

The program emphasized community engagement in every stage of the research, dissemination, and evaluation process for funded projects. This active engagement empowered community members, researchers, and health care professionals to build the communication, trust, and capacity necessary to effectively reduce environmental exposures and improve public health.

Environmental Justice Partnerships has helped to build the programmatic response to issues of environmental justice and health equity. One of the hallmarks of these projects is that they have helped to break barriers between program, disciplines, agencies and multi-stakeholders. These projects have also helped to increased awareness of environmental and occupational health issues, advance the field of Environmental Public Health and Environmental Health Research, inform policy change for improved public health, and provide training and job creation at the community level.

Over the past decade, the NIEHS has been involved in the ongoing issues related to the September 11 attacks, such as cleanup, worker's training and long-term health issues. The NIEHS Disaster Response to the World Trade Center provides immediate and sustained supplemental funding to support World Trade Center training response efforts. To date, it has conducted on-site training for 7,000 response workers, provided respirators, monitored worker exposure, and helped to develop the site safety plan.

NIEHS has been involved in most major disaster response operations that have taken place in the past few years in the US. One of its major roles has been in preparing response workers for the tasks involved in the rescue, recovery and cleanup operations. During Hurricane Katrina, NIEHS trained 35,000 responders in order to more effectively intervene in the process. The experience with Katrina helped in the development of the NIEH Hazmat Prevention Program.

After Katrina, the Bush administration suspended Department of Labor workplace regulations throughout the Gulf, a move consistent with their general emphasis on voluntary workplace protection programs rather than government oversight. This approach left many workers in hurricane reconstruction jobs unprotected, especially Latino immigrant day laborers who, facing language barriers and legal constraints, were least able to negotiate workplace safety or other labor conditions. This led to the development of the training document "Risk Amid Recovery: Occupational Health and Safety of Latino Day Laborers in the Aftermath of the Gulf Coast Hurricanes."[2]

During the 2010 Deep Water Horizon Disaster in the Gulf, NIEHS partnered with OSHA and the NIOSH to bring worker protection plan earlier in the response process. NIEHS developed oil spill response training tools and worked with OSHA and NIOSH as part of the Unified Command assessing worker safety issues. NIEHS also deployed staff, subject manner experts and awardees for instructor training and worker protection outreach. NIEHS, together with OSHA, BP and the Coast Guard, has developed a series of short training courses on safe work practices, personal protective equipment, decontamination, heat stress, and other common hazards for cleanup work. Approximately 100,000 people have completed these courses. Based on this experience, NIEHS has developed an

2 http://www.losh.ucla.edu/losh/research-policy/pdf/Risk-Amid-Recovery.pdf

"Oil Spill Responder Training Tool"[3] which outlines the key health and safety messages for those working in this type of disaster response.

WETP also makes a special Effort to Meet the Needs of Spanish-Speaking Workers Engaged in Hazardous Waste Cleanup and Emergency Response. WETP training reaches thousands of Spanish-speaking workers each year. Its programmatic approach goes beyond simple translation and includes bilingual instructor development, on-going evaluations, and incorporation of cultural factors that impact adult learning for Latino workers.

On September 2011, NIOSH, NIEHS, OSHA and EPA sponsored the First National Conference on Eliminating Health and Safety Disparities at Work[4], to bring together representatives from multiple disciplines and perspectives to understand the social, cultural, and economic factors that create and perpetuate occupational health and safety disparities by:

- Examining the major research accomplishments and gaps related to the identification of social, cultural, and economic factors that create occupational health disparities, and
- Identifying and sharing promising practices for eliminating disparities through innovative intervention programs.

Recent devastating earthquakes around the world have led the NIEHS to develop the *NIEHS Earthquake Response Training Tool: Protecting Yourself While Responding to Earthquakes*. This is an awareness-level health and safety resource for "skilled support personnel" who will participate in an earthquake response and cleanup. This tool helped workers in Haiti understand at an awareness level: what an earthquake is, the characteristics of an earthquake response, and how to identify and control hazards pertaining to the response and cleanup activities associated with an earthquake[5]. Another tool was developed for U.S. responders who participated in the 2011 Japan earthquake and tsunami response[6]. It focused on the radiological hazards created by the Fukushima Daiichi nuclear power plant.

The E-Newsbrief of the National Clearinghouse is a free weekly newsletter focusing on new developments in the world of worker health and safety. Each issue provides summaries of the latest worker health and safety news from newspapers, magazines, journals, government reports, and the Web, along with links to the original documents. Also featured each week are updates from government agencies that handle hazmat and worker safety issues such as DOE, EPA, OSHA and others. Subscribing to the National Clearinghouse Newsbrief is the best way to stay on top of the worker health and safety news[7].

3 http://tools.niehs.nih.gov/wetp/index.cfm?id=2495

4 http://www.aoecdata.org/conferences/healthdisparities/

5 http://tools.niehs.nih.gov/wetp/index.cfm?id=2479

6 http://tools.niehs.nih.gov/wetp/index.cfm?id=2505

7 http://tools.niehs.nih.gov/wetp/newsbrief/currentissue.cfm

URBAN HEALTH: ESTABLISHING AN AGENDA FOR ACTION IN THE AMERICAS

Carlos J. Crespo, Portland State University, School of Community Health, WHO Collaborating Center in Urban Health and Sustainability

Urban health is a complex area that brings together issues related to growth, equity, and the need to develop integrated and multisectoral approaches. A focus on urban health requires us to think outside the box and search for innovative ways to work with people's behavior in an integrated manner. From an intervention point of view, it is important to develop effective surveillance systems (what is the problem?), strategies for risk factor identification (what causes the problem?), and methods for intervention and evaluation (how does it work?), as well as to understand and support the implementation of actions (how is it done?).

The world is increasingly urbanized. Nowadays, over 50% of the world's population lives in cities. Our Region is the most urbanized in the world. The United Nations predict that by 2050, close to 90% of the population in Latin America and the Caribbean will live in urban centers.[8]

Unplanned urbanization often results in increased air pollution, poor access to basic services, adoption of sedentary lifestyle, consumption of unhealthy diets, increases in injuries-related mortality. These issues disproportionately affect the most vulnerable population such as the urban poor, older adults, immigrant groups, and indigenous population.

People move to the urban areas in search for a better life for themselves and their families. Nevertheless, a comparison between urban and rural regions in the US has showed that mortality rates of non-communicable diseases such as coronary heart diseases, cancer and diabetes were all higher among urban populations. The same trends were found in diseases such as chlamydia and gonorrhea, AIDS and tuberculosis. Homicides and firearm injuries also soared in urban centers.

Sixty percent of premature deaths in the U.S. are caused by factors unrelated to medical care. They are related to environmental conditions, social circumstances, and behavioral choices. In order to tackle these issues, we need communities that are conducive to the vibrant lifestyles that will keep people healthy. It is often the case that the strategic approach to urban problems is disease-oriented. These tend to be expensive, uni-sectorial, focused on the individual, and economically, environmentally and socially unsustainable. To effectively address urban health issues we need to shift to more behavior-oriented approaches that are more cost-effective, require a multi-sectorial strategy, are population-based, and build sustainable infrastructures such as transportation, schools, housing, parks, air, water, and social cohesion.

One of the best behavior-oriented approaches to improve public and urban health nowadays is physical activity. Its benefits are well-known and documented: it reduces the risk of dying prematurely, reduces the risk of developing a variety of illnesses (heart diseases, diabetes, cancer, etc.), reduces depression and anxiety, helps to control weight and to build and maintain healthy bones, muscles and joints, and promotes psychological well-being.

In addition to the individual's benefits, experience has shown that there are community benefits to promoting physical activity among the population. These include better community preparedness, increased productivity and community safety, economic and environmental benefits, improved community livability and happiness.

8 United Nations, *World Population Prospects: The 2009 Revision* (medium scenario), 2009.

How to design healthy communities?

Urban interventions require multisectoral approaches to issues that are interconnected at the community level such as housing, health, transportation, land use planning, public safety, parks and recreation, workforce development and education, arts and cultural activities, etc.

The development of healthy public policies is key to assist communities build environments that encourage healthy lifestyles. Providing healthy places for people to live and work will help to realize the social and economic benefits of a healthier, happier, and more productive population.

The city of Portland, Oregon, is a good example of healthy transportation policies that are focused on pedestrians, bicycles, and public transportation. The city boasts the highest rate of bike commuters in US. Bikes are allowed in buses, light rail and street car. Special lanes and boulevards were constructed to allow for better bike traffic.

PAHO has developed an important strategy and plan of action on urban health in the Americas (SHEDA[9]). It aims to:

- Provide stewardship for promoting health.
- Adjust health services.
- Promote policy development.
- Support advocacy for common goal and shared responsibility.

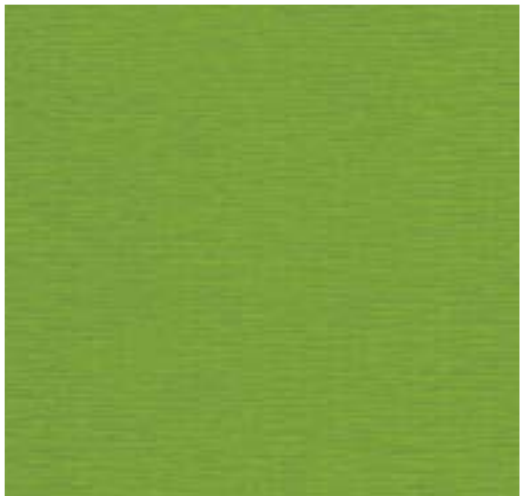
It is based on the principles of equity, sustainability, sustainable developments and built environment, human security and good governance. PAHO has also developed a 10 Year Action Plan for Urban Health with the following objectives:

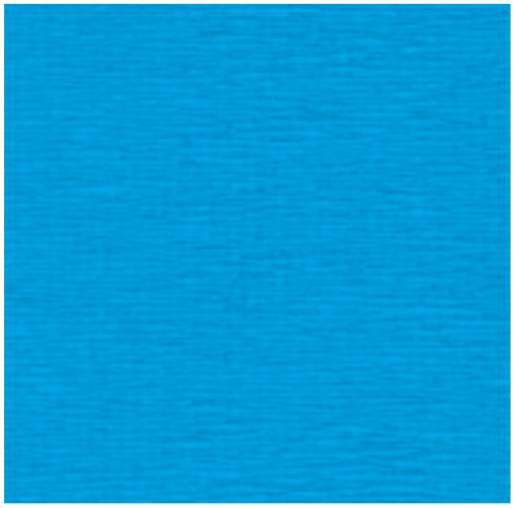
1. Develop urban health policies.
2. Adjust health services.
3. Construct normative frameworks and governance.
4. Expand regional networks for healthy urban development (cities=100,000+).
5. Increase knowledge and capacity for urban health challenges.

It promotes the use of Health Equity and Impact Assessments and surveillance systems in order to help improve methods and evidence related to urban health interventions.

The Portland State University WHOCC on Urban Health and Sustainability is involved in a variety of activities to help improve urban health. These include a research training program in urban health that is not focused on specific diseases; the development of a consortium of universities to bring together researchers, practitioners and policy makers in the issue of Transportation and Health; and the development of a Dual degree program in MPH/MURP.

9 http://new.paho.org/hq/index.php?option=com_content&task=view&id=6035&Itemid=4247&lang=en





Session 2

Social Environment

SOCIAL ENVIRONMENT, ROAD SAFETY, INJURIES AND VIOLENCE PREVENTION

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Given their potential impact on sustainable development, injuries and violence have been incorporated into the Agenda 21.

Chapter 6, which deals with issues related to the protection and development of human health, specifically mentions the need to protect vulnerable populations from violence and to address urban challenges related to road safety. Under Program Area C, which deals with the protection of vulnerable groups, it states that "children and young population born and developed in a hostile social and physical environment suffer not only from unintentional injuries but from stress and other factors such as violence that such environments create." Program Area D, which proposes actions to address urban health challenges, mentions that "population mobility increase risks such as poverty, vulnerability to sexual abuse and exploitation, dangerous working conditions and separation from social support networks." Finally, Program Area E, which outlines strategies aimed at reducing health risks from environmental pollution and hazards, specifically notes that "motor vehicles are not only an important source of air pollution, but also a significant cause of pedestrian injuries and fatalities."

Our WHOCC implements activities to address these issues through the development of Safe Cities and Safe Communities Programs. We also support the design and implementation of strategies to reduce occupational injuries and the development of appropriate monitoring mechanisms.

Beyond the visible impact on quality of life, violence and the lack of security have important consequences to society. It endangers democracy and its institutions, it results in high economic costs, it increases the burden of diseases, and it endangers the existing social fabric. Sustainable development requires stable contexts. This, in turn, requires urgent and appropriate action from all sectors of society to confront violence, insecurity and injustice. Preventive measures, emergency aid and reconstruction programs are important mechanisms to reduce the impact of violence and insecurity in a society.

Similarly, road traffic injuries and poor road safety measures can greatly impact quality of life. Their adverse effects include human hours lost, and physical and mental health problems. Severe road traffic injures are the most tragic externality of inefficient transportation systems and policies. Throughout the years, many programs and strategies have been implemented to tackle these issues. Overall in the Region, problems and needs of individual mobility have only been partially resolved. Most models have excluded the needs of the most disadvantaged population and have pushed them to outlying areas of cities.

Traditional approaches to road safety include a group of actions and mechanisms that guarantee the circulation of transit, and the application of knowledge (laws, regulations and dispositions) and rules of behavior–as a pedestrian, passenger or driver alike–in order to promote the correct use of urban roads.

Current approaches used in the Region are often centered on motor vehicles occupants and aim to improve cities for the use of automobiles. Preventive measures usually focus on the individual level (risk factors) and on secondary prevention. There are plenty of examples of good legislation; however, enforcement is limited or non-existent. Responsibilities and roles related to road safety and the safety of environments are also fragmented.

A new integral and modern approach to road safety is needed. It should include measurements of urban design that can assure the peaceful and safe coexistence of every actor in the urban roads and bring back the social character of the street (Sanz, 2008).

In order to promote such approaches, it is key to change society's perspective on what does mobility means in an urban environment and what the essence of city life should be. These are closely related to and should take into account the socio-economic characteristics of the population such as age, work, income, housing, and daily activities. More than a technical issue, road safety is a social and a political matter (Alcântara de Vasconcelos, 2008).

Injuries and violence prevention faces many challenges related to governance. It requires a shift from actions aimed only at decreasing individual risk factors to a more comprehensive approach that will promote more effective political institutions and more responsible use of public resources by the State. Such approaches should encourage a more positive interaction among democratic institutions, social welfare and the rule of law. It is also necessary to expand beyond the public sector and to promote multi-sectoral collaboration that includes the private sector and society itself. Above all, approaches to injuries and violence prevention should be guided by human rights and the principles of the rule of law and democracy, such as equal political participation for all. Particular attention should be devoted to the needs of the most vulnerable members of society.

Some specific challenges apply to WHOCCs that focus on injuries and violence prevention. These include the need to improve working relationships and collaboration with other related areas such as alcohol, substance abuse, tobacco, mental health, workers health, health promotion and healthy settings. Many WHOCCs also face difficulties related to collaboration to confront local and national issues of violence and injuries. More emphasis should be placed on increasing and strengthening the various networks as well as the interactions among WHOCCs throughout the Region.

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HEALTH-PROMOTING SCHOOLS

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What is a health-promoting school (HPS)?

According to the WHO Global School Health Initiative[10], "a health-promoting school fosters health and learning with all the measures at its disposal." A health-promoting school is one that constantly strengthens its capacity as a healthy setting for living, learning and working. It:

- Fosters health and learning with all the measures at its disposal.
- Engages health and education officials, teachers, teachers' unions, students, parents, health providers and community leaders in efforts to make the school a healthy place.
- Strives to provide a healthy environment, school health education, and school health services along with school/community projects and outreach, health promotion programs for staff, nutrition and food safety programs, opportunities for physical education and recreation, and programs for counseling, social support and mental health promotion.
- Implements policies and practices that respect an individual's wellbeing and dignity, provide multiple opportunities for success, and acknowledge good efforts and intentions as well as personal achievements.
- Strives to improve the health of school personnel, families and community members as well as pupils; and works with community leaders to help them understand how the community contributes to, or undermines, health and education.

Progress, gaps and emerging issues in sustainable development and HPS

The International Symposium "*Linking health, equity and sustainability in schools*" that took place in Geneva, in July 2010, focused on discussing issues related to system changes, intersectoral collaboration, coordinated approaches (rather than silo approaches) and addressing underlying conditions such as poverty with active involvement of the target audience, and measuring what is important (not necessarily what is easily to measure). Participants acknowledged that the things we know how to do often don't work anymore in light of the complexity and welfare issues we face and that we have to change our way of thinking. The Symposium Statement[11] called for the:

- Harmonization of the efforts

The health of human populations, the equitable distribution of resources and the health of global ecosystems are inextricably linked. Health promotion, equity and sustainable development are all relevant for schools. They are closely linked, yet are often treated as separate issues. These three aspects of social development share fundamental principles and values, where individuals and communities acknowledge their own identity, and their connectedness with each other and their environment. The programs evolving from these strategies are often similar, as are the key stakeholders.

10 http://www.who.int/school_youth_health/gshi/hps/en/index.html

11 http://www.health-equity-sustainability-schools.org/page/Statement+on+Symposium+Discussions

There are important differences in mandate and focus, and they work within different sectors. However, we should not seek to homogenize, but rather to harmonize our efforts.

❖ Linking to education and building capacity.

The symposium discussions emphasized the importance of comprehensive approaches, long-term support through international, national/state/provincial and regional policies and strategies, active involvement of all key stakeholders, and continuing professional development.

Issues and challenges for governance

Systems approaches bring a focus on the whole; they highlight the relationships between component parts within the system, and between sub-systems, and require clarity about the contribution of those parts and sub-systems. Using Scotland as a case study, one of the plenary presentations in the symposium[12] described five nested systems with the potential to support or deliver integrated approaches to health, sustainability and equity. These were:

(i) The political system at national level, where policy-making can support cross-government action on these issues in a way that gives leadership for other organizations and for the Scottish population and maximizes synergies between different policy areas.

(ii) The governance system, which establishes where accountability lies and measures the contributions made by organizations to national outcomes, indicators and targets.

(iii) The municipal level, using the example of the city of Glasgow as a system. Any such municipal system has the potential to create health and to take action on sustainability and equity.

(iv) Community, the local system of which schools are a key component. This system is comprised of the environmental, social, human, cultural, economic and educational assets of the community.

(v) The school system, where the pupils, parents, and staff can take a whole school approach to promoting health, sustainability and equity.

Green economy and health opportunities

Eco-Schools[13] is an international program for environmental education and management, which aims to raise students' awareness of sustainable development issues through classroom study as well as school and community action. With the emphasis placed on a democratic and participatory approach, the program encourages children and youth to take an active role in how their school can be run for the benefit of the environment, highlighting the importance of civic values.

12 "Integrated approaches to health, sustainability and equity: addressing the challenges," by Prof. Carol Tannahill, Director, Glasgow Centre for Population Health.

13 http://www.eco-schools.org

Based on the ISO[14]14001:2004, the Eco-Schools program specifies the requirements for an environmental management system to enable an organization to develop and implement a policy and objectives which take into account legal and other requirements to which the organization subscribes, and information about significant environmental aspects.

The Eco-Schools methodology encompasses Seven Steps that any school can adopt. The process involves a wide range of stakeholders, but pupils play the central role. After a period of participation, an evaluation of the success of these initiatives and the methodology is undertaken, and the whole Eco-Schools program for each school is assessed.

Successful Eco-Schools are awarded the Green Flag**,** which is an internationally acknowledged symbol for environmental excellence. In some countries, this recognition happens through a three level system, where schools are awarded either bronze and silver prizes before getting the green flag, or one and two star prizes.

Recommendations and way forward

As a result of the discussion at the Symposium in Geneva[15], the participants agreed that:

1. Comprehensive approaches on promoting health, equity and sustainable development need to be built into school developments and development planning to enhance educational achievement;

2. Long-term support is needed through international, national/state and regional policies and strategies, combined with sufficient political support, resources and capacity are necessary;

3. The active involvement of all key stakeholders (i.e. children, young people and parents), in planning, monitoring and evaluating is essential;

4. Continuing professional development for educators, public health professionals, environmental workers and stakeholders is crucial.

The international movements that are currently promoting health in schools, community schools and eco-schools have agreed to collaborate by exchanging knowledge and information to this end. Basically, there is a need to integrate health-promoting schools into addressing sustainable development and vice versa with comprehensive approaches.

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14 ISO = International Organization for Standardization

15 http://www.health-equity-sustainability-schools.org/page/Statement+on+Symposium+Discussions

SOCIAL ENVIRONMENT, MENTAL HEALTH AND SUBSTANCE ABUSE

Sergio Aguilar-Gaxiola, Professor of Clinical Internal Medicine and Director of the Center for Reducing Health Disparities, and the Community Engagement Program of the Clinical and Translational Science Center, University of California, Davis, School of Medicine

Mental and/or substance abuse disorders are major drivers of suffering, disability, and health care cost; they are also associated with poverty. The vicious cycle of poverty and mental disorder has been clearly established (World Health Report, 2001). Poverty leads to economic deprivation, low education levels and unemployment; there is a high prevalence of mental and behavioral disorders among the poorest population, which often goes untreated and as a result, follows a more severe course. These factors have a negative economic impact due to increased health expenditure, loss of jobs and reduced productivity (World Health Report, 2001). Mental disorders and/or substance abuse often co-occur with physical conditions (Aguilar-Gaxiola, 2009). In fact, physical mental comorbidities are the rule rather than the exception. In short, there is no health without mental health.

Mental disorders are among the most prevalent chronic conditions in the general population. They co-occur within themselves, with substance use disorders, and with many medical conditions. In addition, they typically have much earlier ages of onset than other chronic diseases. Nevertheless, only a minority with mental health needs receive treatment (this is more accentuated in economically disadvantaged populations), even though mental disorders are among the most disabling of all chronic health conditions.

There are some known precursors and physical-mental co-morbidities. Studies have shown that childhood adversities (i.e., abuse or neglect, family violence, parental loss, parental psychiatric or substance use disorder, or economic adversity) are consistently associated with the early onset of mental disorders. In addition, childhood adversities AND early-onset mental disorders have been demonstrated to independently increase the risks of a range of adult-onset chronic physical (including back pain, diabetes, heart disease, asthma, and hypertension) and chronic pain conditions (Aguilar-Gaxiola, 2009; Simon, 2009)

Despite its high prevalence, there are great gaps in treatment. A WHO survey found that among the serious cases of mental health disorders in developed countries, between 35 to 50% had received no treatment during the previous 12 months. The statistic soared in developing countries where between 76 to 85% of serious case had not received any treatment during the previous 12 months (WHO World Mental Health Consortium, 2004).

In México, for example, a study showed that only 17% of those with a 12-month mental disorder had received treatment in the previous months; of the severe cases, only 33% had received treatment while of all the cases, only 11% had received adequate treatment (Medina, Mora, Borges, Lara, *et al.*, 2005).

Mental health disorders account for a major portion of the global burden of disease. Among the top ten main causes of disability, five are mental disorders; they include major depression, schizophrenia, bipolar disorders, alcohol use, and obsessive-compulsive disorders. Most notably, all of these five mental disorders appear by age 24! (Kessler, Berglund, Demler, *et al.*, 2005).

According to the Report of the Committee on the Prevention of Mental Disorders and Substance Abuse (2009), mental, emotional and substance abuse disorders are common and costly. It is estimated that around 1 in 5 young people (14-20%) have a current disorder with an estimated annual cost of $247 billion dollars. These include costs to the individual and family, as well as to multiple sectors such as education, justice, health care, and social welfare.

And yet, a recent report on the financing of global health had no specific information on mental health financing (IHME, 2010). Saxena (2011), has compared the burden of mental disorder versus the proportion of budget to mental health among countries (developing and developed countries). Even though there were significant differences among countries, while the burden of mental health disorders averaged 11.48%, the proportion of budgets assigned to mental health disorders averaged only 3.76%.

There are plenty of opportunities to prevent mental health disorders early in life. These disorders have an early onset (¾ of severe mental disorders are manifested by age 24; ½ by age 14) and the first symptoms typically occur 2-4 years prior to onset of a diagnosable disorder. There are known common risk factors for multiple mental health problems and disorders. Early interventions have shown effects on a wide range of serious problems such as substance abuse, depression, antisocial behavior, child abuse; they can improve positive outcomes such as school success, self-esteem and their effects have been demonstrated to last in the long-term.

Colombia is one example of a model mental health program. The national government (i.e., the Ministry of Social Protection) committed resources to conduct a national, probabilistic mental health survey. The findings were used to develop a national mental health plan and a plan of action for rationally allocating resources. Multiple stakeholders were called upon to discuss an action plan, and the implementation and evaluation of the plan. The National Mental Health Study in Colombia is a part of the WHO's World Mental Health (WMH) Surveys Consortium. It estimated prevalence rates, severity and treatment for lifetime and 12-month DSM-IV disorders in Colombia for adults and adolescents. It resulted in the development of two major reports on the state of mental health among these two population groups (Ministerio de la Proteccion Social, 2003; Ministerio de la Proteccion Social, 2010), and of a Policy for Mental Health Guidelines for Colombia, in 2007. It also resulted in the incorporation of a mental health component in the national primary care model, aiming at early detection of mental health disorders and referral to appropriate support and treatment.

Colombia is currently discussing its course of action to close the gap between research and practice. Among the issues to be addressed are the selection and validation of screening mental health instruments to detect major mental disorders in primary care settings; the training of primary care teams to apply the screening instruments of selected mental health disorders and prepare interventions for utilization in community-based settings; the implementation of a pilot and its evaluation using economic and social indicators to measure its impact; and the adjustment and scaling up of the pilot to increase coverage (Posada Villa, 2011).

There is evidence that ethnic and racial minorities have differential risk for substance use problems based on where they live highlighting the importance of the role the social determinants of health play on mental health and substance abuse status (Alegria, Molina, Cook, & Chen, 2011). For some time, it's been known that neighborhood level characteristics have an effect over and above individual-level factors, since social contextual experiences play an important role in lives of all individuals, and these have clear implications at the policy level (Huston, McLoyd, & Coll, 1994).

Currently there are five top challenges for addressing mental health and substance abuse issues worldwide. They include the need to integrate screening and core service packages in PHC; reduce the cost and improve the supply of medications; provide effective and affordable community-based care; improve children's access to care; and strengthen mental health components in training of health personnel (Collins, Patel, Joestl, *et al.*, 2011).

Globally, most persons with mental and substance use disorders do not receive any specific health care. There are great challenges on the delivery of effective interventions. We need to generate knowledge on scaling up effective care, especially in low-resource settings. People who are carrying the disease burden need help now! Will we respond? (Saxena, 2011).

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PUBLIC POLICY TO PROMOTE HUMAN SECURITY

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A policy is public when it refers to a public good and when it aims to promote the development of and access to public goods with equity and justice. Its acceptance, feasibility and legitimacy increases when a public policy becomes of public interest and part of the political agenda.

Human security refers to issues beyond violence and national security. It is a human issue. Given that human security concerns all people and its violation affects the entire community, it can also be considered a public good. Human security incorporates many aspects: political, community, environmental, personal, health, economic and food are some examples. It is people-centered, universal, multidimensional and interconnected. A health promotion approach to human security should focus on the population and not solely on the State or in the physical environment.

Human security connects with public health at various levels. From a health promotion perspective, for example, early prevention of social, economic and political risks to human security can be achieved by promoting interventions aiming at fostering development and equity. At a primary prevention level, for example, vulnerable groups can be protected through strategies aimed at the early prevention of violence risk factors.

The experience of Medellin, Colombia

A public policy for the promotion of coexistence and for violence prevention was formulated in Medellin and its metropolitan area for the period of 2007-2015. It placed human security as the central concept in the policy´s formulation and implementation, with a focus on enabling the guarantee of human rights and freedom options, and improving governance and human development.

The focus on human security was considered of vital importance due to the negative consequences of violence on human development. The causes of violence involve personal, economic, political, social, environment, health, and community factors, which are also dimensions of human security.

The conceptual model for the public policy incorporated three key elements:

- Creation of information oriented towards action;
- Promotion of an attitude for change and on how to empower communities and promote a desire for change, based on the assumption that cultural changes presupposes a community decision to legitimize and promote the acceptance of public policies aiming at promoting changes; and
- Organization of resources for concrete programs.

The Medellin experience merged tools and approaches from the social science (actors mapping, inventories of interventions, empowerment, problem-solving and consensus) and epidemiological approaches (establishment of surveillance systems and development of surveys and matrices). It resulted in the development of the PREVIVA Program (Prevención de Conductas de Riesgo para la Vida (Prevention of Risky Behaviors for Life)).

The activities were organized and managed in collaboration with the community through the establishment of Coexistence and Security Committees. These committees were created in all municipalities (ten) of Medellin's Metropolitan Area. They incorporated the Mayor, Mayor's cabinet

members (health, education, social action, interior), NGOs, community leaders, religious and educational leaders, police, the Attorney General's office, judges, and PREVIVA team members.

Two key surveys were implemented as part of the PREVIVA program. First, victimization surveys assessed the issue of violence from the point of view of the victims and helped to determine the magnitude and distribution of the problem. Second, aggression surveys looked into the aggressors and helped to determine strength of association and public policies strategies. Understanding the dimension of aggression is important in order to formulate policies; violence is not produced by the victims, but by the aggressor; this is why we need to study them.

The PREVIVA experience helped to identify important risk and protective factors for interpersonal violence. Protective factors included "mother's watching" (vigilance by a parent), levels of social cohesion, attitudes of cooperation with local authorities, increases in socio-economic levels. These were associated at various degrees with decreased incidences of individuals committing armed threats, physical aggression with and without a weapon, and robbery without a weapon.

Among the risk factors for interpersonal violence for individuals committing the same kind of offenses, it was highlighted: anomy; levels of neighborhood violence; exposure to childhood abuse; legitimation of violence as a mechanism for conflict resolution, as an education method, and as a means for community and family protection; levels of social control in the neighborhood; distrust of others; unemployment (recent or lifelong); and machismo.

The data collected in the surveys were analyzed and validated in collaboration with the community and authorities through workshops and meetings of the Civic Coexistence and Violence Prevention Committees. This resulted in increased knowledge ownership by the community, deconstruction of common myths and greater probability of accepting change.

In order to apply the information towards the development of public policies, the risk and protective factors highlighted in the surveys were grouped as outlined below:

Group 1. Family as source of attitudes, values, and practices with respect to violence and coexistence

Protective factors:

- Communication and affection between children and parents; vigilant mother and father
- Childrearing practices for early prevention of aggressive, risky, and criminal behaviors

Risk factors:

- Legitimacy of violence, especially as educational method
- Machismo

Group 2. Unequal and exclusive society

Risk factors:

- Frustration over access to quality higher education (e.g., technical, university)
- Frustration over professional or career opportunities

Group 3. Lack of communication and trust amongst citizens and between them and authorities

Protective factor:

- Collective efficacy: social cohesion and taking care of the neighborhood

Risk factor:

- Distrust amongst citizens and between citizens and local authorities

Group 4. Lack of civic culture for coexistence and security

Risk factors:

- Non-acceptance of rule of law
- Lack of social responsibility and high individual efficacy

These groupings led to the development of a series of programs that were adopted by public policies in Medellin and its metropolitan areas. Examples include:

Programs under Group 1. Policy statement: Development of family coexistence

- Early prevention of aggression. From prenatal up to 3 years of age
- Promotion of civic awareness and early prevention of violence (4 to 11 years of age)
- Gender oriented early prevention of intimate partner violence
- Re-socialization of severe domestic aggressors

Programs under Group 2. Policy statement: Improvement of inclusion and equity

- Increasing access to high quality higher education
- Strengthening already existing mechanisms of coordination among public and private universities and the private sector
- Stimulation of the development of micro enterprises and productive chains among low SES population
- Resilience promotion among children and adolescents

Programs under Group 3. Policy statement: Strengthening communication and interaction among citizens and between them and local authorities

- Strengthening relationships between the Police and local communities
- Strengthening effectiveness, efficiency, and transparency of municipal institutions
- Strengthening social cohesion and collective efficacy

Programs under Group 4. Development of a culture of acceptance of formal and social norms for civic coexistence and security

- Municipal social pacts for the culture of legality
- Re-socialization of young gang members

Next steps in the PREVIVA Program include continuing to follow-up and evaluate the programs and policies developed and implemented under the PREVIVA Program in the local area.

Reference

http://previva.udea.edu.co/

Session 3

Development and Health

116.71
38.2%: 119.29
51.25%: 108.98
61.6%: 99.19
104.19
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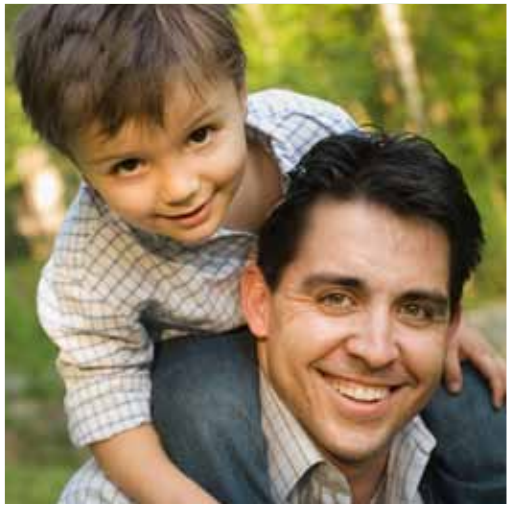
72.48



HOW EFFECTIVE ARE INTERVENTIONS FOR PREVENTION AND CONTROL OF NCDs?

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Many initiatives worldwide have attempted to incorporate a comprehensive approach to the prevention and control of chronic non-communicable diseases (NCDs) and their associated risk factors. One fundamental strategy among these initiatives has been the strengthening and coordination of three essential public health functions: policy and program formulation, development of surveillance systems, and evaluation.

While this coordination is greatly needed, the advances so far have been little. Developing countries face many limitations and obstacle to implement NCDs surveillance systems, to evaluate the effectiveness of their NCDs control and prevention interventions, and to make use of the information produced for decision-making at various levels. A variety of factors can be highlighted, such as the lack of theoretical foundations in the planning of interventions and the insufficient and inappropriate use of technologies to prevent and control NCDs. Furthermore, most efforts are isolated and not institutionalized. Countries often lack proper legislation and regulations to implement public policies. There are important competencies and capacity deficiencies among countries to respond to challenges, as well as poor monitoring and evaluation mechanisms. The verticality and sectorial management of programs imposes barriers for the implementation of more integrated approaches. Finally, most countries continue work under limited institutional and territorial infrastructures and with poor mechanisms for intersectoral management; many countries also still apply neoliberal policies that are more market-oriented than focused on guaranteeing the right to health.

Many of the problems to implement effective responses relate to structural and functional incoherence between health systems and the necessary conditions to guarantee the success of the interventions. Countries and institutions continue to focus on creating new interventions, changing the name of previous ones, "strengthening" them by adding new scopes of action; yet, these interventions continue to operate within the structure and logic of vertical, limited and rigid structures.

Much has been said about the theory and the practice; many initiatives have focused on evaluating the results and impact of NCDs interventions. Others have attempted to explain and synthesize the interactions and mechanisms between biomedical, behavioral, social, and environmental systems. Nevertheless, there is a crucial lack of information about the processes, as well as the quality of the design and implementation of these interventions to address the values, principles and mechanisms that are embedded in them, and the conditions associated with successful interventions. Understanding these factors is key to developing methodological approaches that will support a more effective planning and evaluation process, as well as for producing information that will lead to the institutionalization of practices, community empowerment and to improved decision-making, formulation of public policies and allocation of resources.

A new, comprehensive and integrated approach is needed in order to address the NCD's present situation. It should include:

- *Comprehensive and integrated interventions that take into account causal and contributing factors*; this requires a change in approaches from risk behavior to vulnerable contexts, and a deeper understanding of issues related to equity, the social determinants of health, and the role of contexts and changing environments.
- *Better coordination among programs, strategies and participating sectors and intitutions working with* health promotion and primary health care strategies, networks and service providers, resources and intersectoral teams.

- *Improved intersectoral management tools;* this requires a better understanding of what are the most appropriate and effective entry points for strategies to act as catalyst of changes, the adoption of innovative information, monitoring and surveillance systems, and the development of innovative evaluation approaches and indicators of success, that can account for the complex nature of most public health interventions.
- *Emphasis on capacity building and strengthening of community resilience.*

Approaches to NCD prevention and control should be population-based and incorporate complementary interventions that apply to the population as a whole and not exclusively to those at risk. Population-based interventions require the coordination of institutions and communities through sustainable and cost-effective intersectoral efforts. This places intersectoral management as a key issue for the success of comprehensive and integrated interventions. Intersectoral managenet is a complex area of work that has attracted a lot of attention in the past few years. Much has been said about the need to act and to work intersectorially; yet little has been done on understanding how to do it. In order to be possible and successful, intersectoral management requires an adjustment of systems, structures, organizations, and technology at various levels and contexts.

Three essential public health functions also need to be better coordinated; they include the formulation of public policies and programs, public health surveillance, and the evaluation of effectiveness and impact of policies and programs. This requires the development of a theoretical and operational framework that will link the need to better understand the factors associated with NCD interventions and the need to create information geared towards action; that is, to move from data to information for public health action.

CEDETES has developed, tested and applied a new model for evaluation of effectiveness based on surveillance systems for NCDs. This evaluation model makes use of available information (quantitative and qualitative), while at the same time building institutional and local capacity to address local issues, and converting surveillance systems into a capacity building and empowerment tool. It supports the establishment of community monitoring and surveillance systems, the recovery of local practices, and the construction of local capacity to produce and use information for action. The application of this model has resulted in increased community awareness on the importance of information for decision-making and local development.

Additionally, the systematization of public health initiatives is an important tool to support communities in understanding and acting on contradictory processes where different interests and actors often coincide and collide at the same time. It helps to construct a system that involves organizing, ranking and linking a series of facts and elements that are apparently scattered in order to better understand and interpret community practices in local contexts.

In order to move forward, it is important to better position issues related to program and policies planning, management and evaluation in the public sphere and agenda. We need to bring about sustainable processes for the development of skills, organizational structures, social networks, resources and responsibilities to build health and wellbeing. We should also reflect on how we can better contribute to regional development and focus not solely on what we can do, but on what we should do.

Recommended resource

Virtual Course and Latin American Workshop: "Evaluation of Effectiveness in Public Health: Health Promotion and Primary Care": http://www.fundesaludcolombia.org

MILLENNIUM DEVELOPMENT GOALS (MDGs): OLD AND NEW CHALLENGES POSED BY THE SUSTAINABILITY AGENDA AND THE ROAD TOWARD A NEW, POST 2015 AGENDA

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Since 2005 ECLAC has been coordinating a series of reports with agencies of the United Nations system to monitor the achievement of the MDGs in Latin America and the Caribbean. In 2010, the United Nations issued the second interagency report,[16] the most recent assessment, whose results are described below. The third regional assessment will be issued in 2013, this time not only taking stock of progress and challenges toward meeting the MDGs, but also looking to the post 2015 agenda. While engaged in this effort, ECLAC, jointly with the United Nations agencies and in consultation with the governments, has submitted a preliminary report on fulfillment of the commitments made in 1992 at the first Rio Summit, with a view to presenting a regional agenda of proposals, drawn up by consensus among the governments, at the Rio+20 Summit in 2012.

As a backdrop to the progress and challenges that remain for achieving the MDGs directly related to the right to health, the 2010 report noted the progress made in reducing extreme poverty and undernutrition and in increasing access to water and sanitation. With respect to Target 1A, on reducing extreme poverty by half, a significant drop in incidence was observed between 2002 and 2008; however, this trend came to a halt with the financial crisis and volatile rising food prices. If the rate of progress recorded between 1990 and 2009 had continued, Latin America would have been able to meet the goal of halving the proportion of people living in extreme poverty. However, less progress was made in overall poverty reduction, and the region will not meet this more ambitious goal. Central America and the countries with lower income per capita in the region have structural limitations that inhibit sustained progress (lower growth, insufficient domestic resources due to a low tax burden, the persistence of very large inequalities, natural disasters). Today's volatile growth, coupled with high energy and food prices, could undercut the progress made thus far; hence, there is no guarantee that Target 1A will be met.

The region as a whole has made progress toward halving the proportion of the population who suffer from hunger (Target 1C), especially when it comes to overall malnutrition, with a reduction in the percentage of children under five with low weight. Nevertheless, FAO estimates put the proportion of people under the minimum level of food energy intake at 7.3% of the population, representing slightly less-than-expected regional progress toward reducing undernutrition (55% vs. 58%) given the time elapsed. It should be mentioned that in terms of the 1996 World Food Summit's goal of eradicating hunger, regional progress in the area of undernutrition is just 22%. Furthermore, while malnutrition and undernutrition levels are low in comparison with those of other developing regions, in several countries they are far higher than the average. Finally, substantial progress was made in the period 1990-2010 toward improving access to water and sanitation, putting the region on road toward meeting Target 7C.

16 United Nations (2010), *Achieving the Millennium Development Goals with Equality in Latin America and the Caribbean. Progress and Challenges:* http://www.cepal.org/cgi-bin/getProd.asp?xml=/publicaciones/xml/5/39995/P39995.xml&xsl=/tpl-i/p9f.xsl&base=/tpl/top-bottom.xslt

As for guaranteeing the right to health (that is, MDGs 4, 5, and 6)[17], much of the failure to guarantee this right stems from the existing inequities, which translate into preventable deaths and disease in mothers and children. Meeting the goal in infant mortality (MDG 4), improving maternal health (MDG 5), and combating HIV/AIDS, malaria, and other diseases (MDG 6) are a priority for guaranteeing this right.

Despite the significant progress made, several countries will continue to report very high child mortality rates in 2015. Although at the aggregate level the region is on the road to meeting Goal 4 (reducing the mortality rate in children under 5 by two thirds), many countries will not do so.

In contrast to the progress noted earlier, little headway has been made in reducing maternal mortality: while the rate has declined, the absolute number of deaths and—with some exceptions—the virtual stagnation of that number, are troubling. The leading causes of death point to the need for care in childbirth and the puerperium, with figures in these areas biased by household income level and barriers in access to the health services. Another major factor is the limited availability of specialized health workers, along with inadequate services in family planning and the treatment of sexually transmitted diseases for the most vulnerable population.

As for universal access to reproductive health services, the region boasts high prenatal care coverage, although sometimes it does not result in low maternal and child morbidity and mortality levels. Adolescent fertility levels remain high and are climbing. The vast majority of the countries have reduced the unmet demand for family planning. Nevertheless, given their close link with access to contraceptives, the social gaps in this area persist. The 2010 report also noted that HIV prevalence is leveling off. If the trend continues, most of the countries in the region will meet Target 6A and begin reversing the spread of HIV/AIDS. Moreover the region could meet the goal of universal access to antiretroviral therapy. In the Caribbean, Haiti and the Dominican Republic, the two countries in which HIV/AIDS is one of the leading causes of death in adults aged 15-44, have made great progress. The epidemic has leveled off in Haiti, and the prevalence of the disease has declined in the Dominican Republic. However, the growing number of women and young people with the infection, particularly in the Caribbean, is troubling.

The incidence of malaria in Latin America and the Caribbean is much lower than in the world's most affected regions. However, 21 of the 35 PAHO/WHO member countries and territories still have areas with active transmission of the disease. Nevertheless, significant progress has been made: there was a 53% reduction in the number of people who contracted the disease in the period 2000–2008, and deaths from this cause during the period plummeted by 75%.

Tuberculosis has also declined since 1980, and the trend is expected to persist through 2015. This decline is attributed to effective control measures: since 1996 the downward trend in the incidence of the disease has accelerated, thanks to successful application of the directly observed treatment, short-course strategy (DOTS). Accordingly, Target 6C on combating malaria and tuberculosis is on the way to achievement.

In short, in the period 1990-2010, Latin America and the Caribbean saw significant progress at the aggregate and regional level in reducing extreme poverty, overall malnutrition, and infant mortality and improving access to safe drinking water and basic sanitation. Nonetheless, of the nine targets evaluated, corresponding to six of the eight MDGs, progress in the following four was

17 United Nations (2008), *Progress towards the Right to Health in Latin America and the Caribbean* - http://www.eclac.cl/publicaciones/xml/2/34052/MDG_HealthLatinAmericaCaribbean.pdf

insufficient: undernutrition, universal completion of primary education, gender parity in national parliaments, and maternal mortality. Enormous inequalities persist among and within countries. In the case of countries with significant lags, meeting the targets does not imply that the Goals have been met, meaning that the Goals are still as important as ever (e.g., reducing extreme poverty).

Hand in hand with the regional analysis of the achievement of the MDGs, general guidelines to support sustainable development in the region are being discussed as part of the preparatory process for the Rio+20 Summit. The preliminary report[18] contains the following guidelines:

- Alignment of policies on social protection, security and safety, and quality of life with environmentally friendly economic activities;
- Heightening the visibility of the environmental and social costs of economic decisions with a view to their internalization;
- Development of better policies based on a more informed, participatory process;
- Strengthening of education, science, and technology in order to build human capital for sustainability.

In addition, Colombia and Guatemala have submitted a formal proposal that a series of Sustainable Development Goals (SDGs) similar to and in support of the MDGs be defined during the Rio+20 Conference[19]. These Goals should address issues such as fighting poverty; modifying consumption patterns; promoting sustainable human settlements, biodiversity, and the sustainable use of forest, ocean, and water resources; improving food security; and promoting sustainable energy, including energy from renewable sources. The proposal is that agreements be reached only on Sustainable Development Goals at Rio+20, with targets and specific indicators determined as the MDG agenda evolves.

Implications for the MDGs now and onward to 2015

It is important to point out some constraints and problems associated with the MDGs as a framework for monitoring development in the region. These include:

- The need to adapt targets and indicators to (new or changing) regional and national situations.
- The risk of overlooking regional (and national) heterogeneity and inequalities when assessing progress and challenges at the aggregate level.
- The difficulty of providing evidence of inequality as a constraint to progress as well as evidence of the reproduction of poverty (little emphasis on the mechanisms involved in the intergenerational reproduction of poverty).
- The difficulty in some cases of translating the monitoring of targets and goals into specific public policy recommendations.
- The fact that policies and programs have not given enough consideration to the synergies between the different goals and targets (e.g., poverty—education—employment—the economy/green jobs).

18 Sustainable development in Latin America and the Caribbean 20 years on from the Earth Summit: progress, gaps, and strategic guidelines.http://www.uncsd2012.org/rio20/content/documents/eclac.pdf

19 Propuesta de las delegaciones de Colombia y Guatemala "Rio+20: Objetivos de Desarrollo Sostenible". http://www.eclac.cl/rio20/noticias/paginas/5/43755/2011-612-Rio+20-Nota_de_la_Secretaria-Rev.1_Prop_Col_Guat.pdf

- Absolute achievements vs. relative achievements: in cases where the initial lag is substantial, meeting a target does not imply the permanent achievement of a goal; in cases where significant progress was made prior to 1990, zero or inadequate performance between 1990 and 2015 does not necessarily indicate an unfavorable situation.

Nevertheless, it is necessary to consider an "MDG plus" agenda that will continue providing a global platform for discussion and development monitoring. One advantage of the MDG framework is the fact that it condensed many items on the global development agenda that had been emerging in previous decades and were being monitored separately. By addressing a multitude of complementary issues, the MDGs also serve as a comprehensive framework for monitoring the impact of policies and economic performance on the overall well-being of societies. The international agenda has also evolved. Global volatility and vulnerability (the financial, energy, and food crises, along with climate change), the progress of the sustainability agenda, and changes in the epidemiologic and population profile call for a reorientation or adjustment of the goals and the targets set in 2000.

Therefore, the preparation of a post 2015 agenda should consider a number of aspects. It should be multilevel in nature--that is, it should have common goals and targets but be capable of adapting to the regional and national context through additional and/or complementary targets and indicators. It should seek to complement the issue gaps already identified (social inequality, quality job creation, the rights approach, etc.) and include new priorities based on the epidemiologic and demographic changes in the population. The new agenda should be in line with the demands of sustainable development responsive to the challenge of climate change. It should also tackle the challenges to governance posed by the provision of public goods as prerequisites for achieving sustainable progress and include the guarantee of (and financing for) basic, supportive, and universal social protection, a compelling idea that synthesizes old and new challenges for development.

THE SOCIAL DETERMINANTS OF HEALTH

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The Social Determinants of Health (SDH) are the social, economic, cultural, ethnical, psychological, environmental and behavioral factors that influence the health risk of the population. They incorporate the social, living and working conditions and are present at different levels of life in society. The concept of the SDH proposes that health is both a prerequisite for, and a measure of, sustainable development.

Historically, there have been tensions among those working with the SDH. These were mostly due to different interpretations of the various paradigms developed around the SDH; the state of knowledge and the characteristics of social organizations at various points in time; and the use of a variety of explanation models and intervention strategies.

While the social dimensions of health have been incorporated into the WHO Constitution since 1948, it was downplayed during the 1950's, when most public health action revolved around specific diseases. The concept of health determinants re-emerged in 1978 with the Alma-Ata Declaration and the Health for All Agenda. Yet, its momentum was short lived and action around the issues faltered during the 1980s. During the 1990s, broad health reforms that took place throughout the Region, promoted the paradigm of health as an issue to be managed by the private sector. During the decade of 2000, with the definition of new agendas such as the MDGs, interest in the SDH resurfaced and with it, new opportunities for action. In 2005, WHO established its Commission on the Social Determinants of Health, which has catalyzed action worldwide in a variety of issues related to the SDH.

Last month (October, 2011), WHO organized the First Conference on the Social Determinant of Health, in Rio de Janeiro, Brazil. It resulted in the Rio Political Declaration on Social Determinants of Health, which outlines five key action areas considered critical to addressing health inequalities:

- Adoption of better governance for health and development;
- Promotion of participation in policy making and implementation;
- Further reorientation of the health sector toward reducing health inequities;
- Strengthening of global governance and collaboration;
- Monitoring of progress and increase accountability.

The upcoming United Nations Conference on Sustainable Development (Rio+20), in Rio de Janeiro, Brazil (June 2012), represents a new opportunity to incorporate the SDH in the development agenda. The Conference will focus on two themes: (a) the green economy in the context of sustainable development and poverty eradication; and (b) institutional framework for sustainable development. It is expected that the Conference will result in a new agenda for environmental global change and development with sustainability.

Since 1992, Agenda 21 has been a key instrument for social and sustainable development in the Region. It was revisited during the previous Rio+10 meeting and will now be again during Rio+20. The green economy was one of the themes of a variety of projects developed worldwide, including Brazil.

From 2007 to 2009, a research group composed of seven Brazilian universities implemented a multicenter study in all five regions of the country to evaluate the impact of the Agenda 21 in helping municipalities to achieve the Millennium Development Goals (MDGs). It was named: *"Health*

and Local Development: Effectiveness Evaluation of Social Agendas in Brazilian Cities based on the MDGs."

The study formulated the following hypothesis related to the impact of Agenda 21 on the development of Healthy Cities:

1. Development, as promoted by social agendas, is an important asset to improve living, health and environmental conditions, since they affect the social and economic determinants of health; and

2. The impact is supported by principles of action proposed in the Agenda 21 such as the use of holistic approaches, intersectoriality, empowerment, social participation, equity, multi-strategic actions and sustainability.

The study was conducted in three phases. The first one involved defining the study agenda with stakeholders from the five regions of the country through phone interviews. During the second phase, an impact study was conducted using a retrospective cohort study methodology and secondary data from 1991-1996 to identify progress related to the MDGs; 105 cases and 175 controls were selected throughout the country. Twenty-four case studies from the five regions of the country were conducted during Phase 3, and the best results on MDG indicators were selected for a deeper analysis of the community's social experience in local management and civil society in the implementation of the development agenda.

The analysis of the interviews demonstrated that different configurations of the Agenda 21 were used according to problems and assets of the regions and municipalities. Great focus was placed on the diagnostic process and the elaboration of plans in order to promote financial support to the actions. Sustainability was a recurrent issue mentioned in the interviews, as well as issues related to the democratization of the relations with public power.

Agenda 21 was recognized as an innovative model for local management. It promoted democratic values, helped to integrate different sectors of society and to strengthen social participation practices. Its implementation was credited with supporting environmental changes as well as changes in power relation among the population through the promotion of transparency.

The study highlighted the importance of continuing to invest in local development agendas. The local level constitutes a key setting to integrate agendas and sectors, as well as scientific knowledge related to technology and human and social sciences. Local development agendas support action to address the environmental, social and health problems that affect individuals and communities, with their participation. Therefore, local developmental agendas are an ideal tool to invest and promote good citizenship.

WATER AND SANITATION IN BRAZIL

Guilherme Franco Netto, Health Surveillance Secretariat, Ministry of Health, Brazil

Public health in the 21st Century has been characterized by demographic, epidemiologic and nutritional transitions; the rise of social and environmental risks and vulnerabilities; and a new global economic dynamic. These are phenomena with scales and speed that have never been experienced before and to which the theoretical models more frequently adopted do not offer the best answers to explain the reality, demanding the search for more complex theoretical modeling approaches (Tambellini and Camara, 1998).

WHO (2002) estimates that 30% of human health harm is related to environmental factors, such as inadequate sanitation, air pollution, exposure to chemicals and physical pollutants, natural disasters, and biological factors (vectors, hosts and reservoirs). According to WHO, of the 1.5 million deaths worldwide, 88% were attributable to diseases related to contaminated water, inadequate sanitation or poor hygiene (WHO, 2006).

Environmental health is a public health area concerned with scientific knowledge and the formulation of public policies related to the interaction between health and environmental factors, either natural or man-made, in order to improve life quality, according to the sustainability agenda.

Environmental health actions in Brazil have been based on the Sustainable Development Agenda. National Development Plans have been defined, which incorporate the MDGs. These have also been developed in coordination with PAHO Strategic Plans, the National Health Plan, and the National "Pact for Health" Program. All of these plans have provided the framework for the development of a health promotion and environmental health national policy.

Brazil is a diverse country. It encompasses large urban and suburban areas, rural areas and traditional territories. These imply different exposures and levels of vulnerability among the population, which, in turn, poses particular challenges in the implementation of environmental health actions throughout the country.

The country faces great challenges related to equity. While some municipalities, mostly from the south and southeast region, present high Human Development Indexes (HDI) that are comparable to more developed countries such as Ireland, Italy and Greece, other municipalities (mostly on the north and northeast region) present HDI that are comparable with some of the world's poorest nations such as Laos, Yemen and Haiti (Carneiro, *et. al.*, 2010).

The Environmental Health Coordination Office of the Brazilian Ministry of Health manages the National Environmental Health Surveillance System. This surveillance system is based on actions and services provided by public and private organizations for building knowledge about, and improving detection or prevention of, changes in environmental factors that interact with human health. The information generated supports the development of recommendations for the adoption of preventive and control measures related to the risk factors that are related to diseases and other health outcomes.

The implementation framework of the Environmental Health Surveillance System incorporates approaches from health promotion and environmental health, risk and vulnerabilities reduction. The System includes the following components: water resources, environmental and sanitation sector, consumer protection, NGO and civil society, universities, laboratories. It aims to promote the development of strategies to improve the quality of life and health of the population, public policies and new tools and instruments.

The Environmental Health Surveillance System was developed based on a WHO model that defines a hierarchical model to demonstrate the environmental-health chain and that includes five levels (WHO, 2000; Corvalán *et al.*, 1996; Domingues, 2001):

- Driving forces: represented by the more general characteristics of the developing model adopted by the society (such as industry and energy, household activities, transportation, waste management agriculture).
- Pressure: Expressions from the conditions above in the environment, mainly the geographic economic exploration (i.e. emissions).
- State: Environmental dynamics (such as environmental pollution, air, water, food, soil).
- Exposure: amount of human exposure.
- Effects: Health effects related to that exposure(premature, subclinical; moderate, clinical; advanced, permanent).
- Action: For each of the above, what actions can be taken.

The Brazilian Ministry of Health also manages the Drinking Water National Surveillance Program (VIGIAGUA). This surveillance program is implemented and operationalized at the municipal level. Municipalities are responsible for managing a series of actions related to water provision, sampling, testing, quality control, and surveillance; inclusion of data into the SISAGUA database; and implementation of recommended water standards. To date, a total of 4,883 (87%) of Brazilian municipalities participate in the Drinking Water Surveillance Program.

Water contamination (cyanobacterias and cyanotoxis) and inequities in access to basic sanitation rank among the major problems related to access to potable water in Brazil. Indicators related to inadequate sanitation demonstrate that most problems are concentrated in the north and northeast regions of the country. This is also the region with the highest rates of hospital admissions. While Brazil has achieved the goal in reducing by half the urban population without access to potable water, most of rural areas remain uncovered.

The Brazilian Ministry of Health also coordinates the PISAST Program, which provides situational analysis related to environmental health and workers' health. The program allows for the organization of information related to the identification, monitoring and evaluation of environmental health determinants that impact the quality of life in specific territories. It offers the opportunity to assess epidemiologic data regarding death, disease, injury and risk, and to better understand some of the major vulnerabilities of human settlements.

Brazil faces major challenges in improving basic sanitation. The current "Accelerating Growth Plan" (PAC II, for its acronym in Portuguese) has allocated US$24 billion for actions in sanitation; yet, it is estimated that the financial need to cover basic sanitation needs revolves around US$100 billion. There is also an urgent need to reinforce legislation and regulations related to basic sanitation.

Drinking water surveillance also faces challenges. These relate to the need to improve drinking water quality and treatment, to integrate actions with primary health care services, to identify health risk sources related to contaminated drinking water, to reduce morbi-mortality related to contaminated drinking water, to evaluate program impact, and to implement water safety plan approaches.

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