

DRAFT REPORT



HEALTHY ENVIRONMENT, HEALTHY PEOPLE

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HEALTHY ENVIRONMENT, HEALTHY PEOPLE

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Summary

The 2030 Agenda for Sustainable Development highlights critical links between development, the environment, human well-being and the full enjoyment of a wide range of human rights, including the rights to life, health, food, water and sanitation. This report summarizes for governments, policy-makers and stakeholders the evidence of the linkages between environmental quality and human health and well-being, but also points to the broader drivers of these linkages, including consumption, inequality, unplanned urbanization, migration, unhealthy and wasteful lifestyles, and unsustainable production patterns.

The last century has witnessed an unparalleled improvement in human health. The global average life expectancy has increased from 47 years in 1950–1955, to 69 years in 2005–2010. Correspondingly, death rates in children younger than 5 years of age have dropped from 214 per thousand live births in 1950–1955, to 59 in 2005–2010. Estimated global maternal mortality ratio (MMR) has declined by 44% since 1990, from 385 (1990) to 216 deaths per 100,000 live birth, reflecting improvements in mortality by almost any measure possible.

Progress in a range of environmental sectors has yielded corresponding improvements in health outcomes with substantial economic and financial gains. The world has met the Millennium Development Goal target of halving the proportion of people without access to improved sources of water, five years ahead of schedule. The successful phase-out of nearly 100 ozone-depleting substances (ODS) means that up to 2 million cases of skin cancer and many millions of eye cataracts may be prevented each year by 2030 thanks to the healing ozone

layer. The common factor in these successes has been the implementation of dedicated, unrelenting and targeted cross-sectoral, integrated long-term policies.

But challenges remain. The environment and ecosystems, both terrestrial and marine, are under serious pressure with dire consequences for human health and well-being. The degradation of the environment – the air we breathe, the food we eat, the water we drink, and the ecosystems which sustain us – is estimated to be responsible for at least a quarter of the global total burden of disease. However, these estimates do not take into account the effects of emerging global environmental changes, which risk reversing decades of progress in health and development through the combined effects of climate change, biodiversity loss and the degradation of the natural systems that support all life.

While the environmental burden of disease represents a quarter of the global burden of disease, it rises to a third for children¹. Air pollution is the world's largest single environmental risk to health: some 7 million people across

¹ This report uses the broader WHO definition of “health as the state of complete physical, mental and social well-being and not merely the absence of disease”. Figures used in this draft report will be replaced with updated figures once WHO finalises its new global estimates of environmental burden of disease.

the world die each year due to everyday exposure to poor air quality. In some countries, simply preparing a meal is a major risk to health because of indoor air pollution with 4.3 million deaths attributed to household air pollution arising from primary cooking alone. Over half the world's population live in urban areas, yet only 12% of cities reporting air quality data meet WHO guidelines on air pollution. At least 500,000 deaths annually are caused directly or indirectly by chemicals, with a much larger loss in terms of Years Lived with Disability. Some 107,000 people die annually from exposure to asbestos and 143,000 from exposure to lead. Respiratory cancers cause 1.6 million deaths per year. The 50 biggest active dumpsites affect the daily lives of 64 million people. Lack of access to clean water and sanitation causes 58% of cases of diarrhoeal diseases in low and middle-income countries. Unsafe water, inadequate sanitation or insufficient hygiene result in 3.5 million deaths worldwide, representing 25% of the premature deaths of children younger than 14.

Micro and nano materials in marine ecosystems may not be biodegradable, and can then stifle life on the seabed. Excessive nutrient in fresh and coastal receiving waters from land based activity leads to eutrophication, negatively affecting ecosystems, and freshwater and marine resource productivity, thereby impacting food security, livelihoods and health negatively. Zoonotic diseases, linked to ecosystem disruption, such as avian influenza, Rift Valley fever and Ebola, have also become the source of major pandemics. Important ecosystem services

are lost such as pollination, natural pest control, access to herbal and traditional medicines important for large shares of the World's population, but also carbon sinks.

High-risk occupations include agriculture, mining and construction – often with a relatively high proportion of children, youth or migrant workers who have substantially higher rates of fatalities and exposure to chemicals and injuries. Vulnerable groups also include those living in poverty and those at greater risk due to certain occupations, livelihoods, and locations. Widespread land and coastal degradation greatly exacerbates effects of extreme weather, destroys livelihoods and food security, threatens health and well-being, and subsequently even forces people into migration.

Climate change is acknowledged as a major health risk multiplier, with existing impacts that are expected to increasingly affect human health including through negative changes to land, oceans, biodiversity and access to freshwater, and the increasing frequency and higher impact of natural disasters. Cautious estimates from the World Health Organization (WHO) indicate that 250,000 additional deaths could potentially occur each year between 2030 and 2050 as a result of climate change. Environmental degradation is estimated to cause 174-234 times as many premature deaths as occur in conflicts annually. Mental health issues also rank amongst the ten largest non-fatal threats in most countries. Disproportionate impacts of environmental harms are evident on specific groups: the poor, the young, the elderly, women and migrant workers.

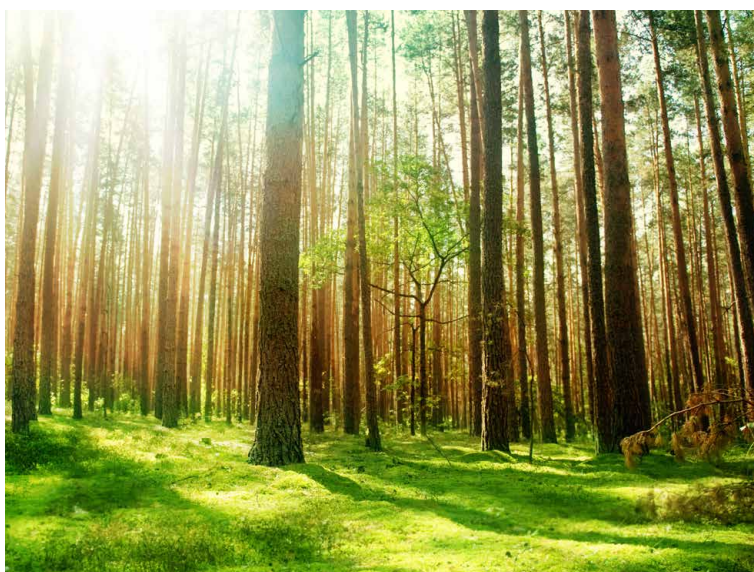


The financial costs of environmentally related health risks are generally in the range of 5-10% of GDP, with air pollution taking the highest toll. Evidence exists, however, of the catalytic and multiple benefits of investing in environmental quality in terms of development, poverty reduction, resource security, reduced inequities and reduced risks to human health and well-being. Clean air and water, sanitation and green spaces, safe workplaces can enhance the quality of life of people: reduced mortality and morbidity, healthier lifestyles, improved productivity of workers and their families, improve lives of women, children and elderly and are crucial to mental health.

Based on the evidence of the linkages between poor environmental quality and health, the following are identified as priority problem areas, among others, for urgent policy attention:

- 1) Household (indoor) and ambient (outdoor) air pollution, which currently cause morbidity and reduced quality of life within countries and across borders;
- 2) Unsafe water, inadequate sanitation or insufficient hygiene which cause mortality, morbidity and lost economic productivity;
- 3) Hazardous chemicals and toxic waste, which cause deaths and mental morbidity;
- 4) Nutritionally poor diet composition and quality, as well as increased physical inactivity, which has increased the growth of non-communicable diseases throughout the world; and
- 5) Degraded ecosystems and stresses to the Earth's natural systems, which reduce ecosystem services that support human health, enhance exposure to natural disasters, food security, and at times give rise to disease outbreaks.

Climate change is exacerbating the scale and intensity of these environmental related health risks.



The report's findings provide a strong basis for adopting an integrated approach for improving human health and well-being through environmental sustainability. A framework of four integrated actions and strategies is suggested:

→ **DETOXIFY:** Remove harmful substances from and/or mitigate their impact on the environment in which people live and work. This will, for example, address air pollution, through reducing black carbon emitted by household and non-household sources and other pollutants, and ensure that emission concentrations do not exceed WHO recommended targets for PM2.5 and Carbon Monoxide (CO)². It will focus on the sound management of chemicals through life cycle approaches and improved management and reduction of waste.

→ **DECARBONIZE:** Reduce the use of carbon fuels and thereby emissions of carbon dioxide (CO₂) through substitution of non-carbon energy. Over their life-cycle, the pollution-related human health and environmental impacts of solar, wind and hydropower are a factor of 3 to 10 times lower than fossil-fuel power plants³. The Nationally Determined Contributions (NDCs) committed under the Paris agreement on Climate Change can be important vehicles for decarbonization, and consequent health and well-being improvements.

→ **DECOUPLE RESOURCE USE AND CHANGE LIFESTYLES:** Use fewer resources per unit of economic output produced and reduce the environmental impact of any resources that are used in production and consumption activities through more efficient practices. Important health benefits can be gained from decoupling opportunities in the food sector, in water use, in energy consumption. Shifts in consumption from animal to plant-based products, and improved diet composition and quality have positive implications for health. Linking responsible consumer behaviour and demand for products to its land-use implications can help address environment and health linkages.

→ **ENHANCE ECOSYSTEM RESILIENCE AND PROTECTIONS OF THE PLANET'S NATURAL SYSTEMS:** Build capacity of the environment, economies and societies to anticipate, respond to and recover from disturbances and shocks through: agro-ecosystem restoration and sustainable farming systems; strengthening ecosystem restoration, in particular of wetlands, dryland vegetation, coastal zones and water sheds including through reforestation; reducing livestock and logging pressures to increase resilience and mitigate extreme weather conditions of storms, drought and floods. Sustainable land and forest management, along with conservation and restoration, will protect and enhance biodiversity and ecosystem services. This will lead to improved absorption of rainwater into the soil, increased water storage and availability, more biomass, and greater food security, thus reducing malnutrition. These restorative activities will not only ensure food security, but also a clean and healthy environment to nurture cultural, social and recreational activities.

Analyses of past successes reveal that such endeavour is far from trivial. They can, however, be achieved successfully when supported by a context-appropriate mix of the following targeted, integrated strategies such as:

- Strengthened governance at the nexus of health and environment;
- Integrated evidence based policies and the instruments that translate policy to action across sectors and industries;
- Partnerships and platforms to incubate, catalyze, accelerate, and scale health-environment research, innovation, technologies, innovative financing, and practices;
- Improved individual, household, and societal knowledge, attitudes, and practices through systematic communication and education interventions;
- Measurement and monitoring to ensure an adequate formative process, and a summative research framework that engenders the evidence base that all investment and action demand.

2 These guidelines have been accepted as the definition of clean fuel and technologies for SDG 7.1.2 indicator. (WHO (2014) Indoor Air Quality Guidelines: Household Fuel Combustion, Geneva http://www.who.int/indoorair/guidelines/hhfc/IAQ_HHFC_guidelines.pdf?ua=1&ua=1)

3 UNEP (2015) Green Energy Choices: the benefits, risks, and trade-offs of low-carbon technologies for electricity production. Report of the International Resource Panel (http://www.unep.org/resourcepanel/Portals/50244/publications/Summary_for_Policy_Makers_GHG_1.pdf)

In conclusion, addressing the nexus between environment and human health through delivering on environmental sustainability can provide a common platform for meeting many of the Sustainable Development Goals (SDGs). Through multiplier effects that can accelerate and sustain progress across multiple SDGs, investing in environmental sustainability can serve as an insurance policy for health and human well-being. It is important on efficiency grounds, but also for distributive justice, and to address the moral and legal obligations of states.



RECOMMENDATIONS

The Report's findings provide a strong basis for adopting an integrated approach for improving human health and well-being through environmental sustainability. Based on the Report and the framework of action and strategies, the following is recommended:

1. Recognize that environmental sustainability through protection, conservation and restoration has a direct bearing on human health and well-being.
2. Recognize that addressing the nexus between environment and health can provide a common platform for meeting many of the SDGs.
3. Recognize that investing in environmental sustainability can serve as an insurance policy for health and human well-being.
4. Recognize that addressing the environment health nexus is important on efficiency grounds, but also for distributive justice, and to address the moral and legal obligations of states.
5. Recognize that integrated actions and strategies for improving human health and well-being are central tools and a unique opportunity for meeting the SDGs and related targets.
6. Recognize that international and national cooperation on environment and health can create important synergies and contribute well to delivering on the 2030 Agenda for Sustainable Development.
7. Recognize that by moving from a reactive to a proactive policy approach, many environment and health emergencies can be avoided or mitigated, pre-empting crises that otherwise might cripple a country's economic, political and physical infrastructure.
8. Emphasize the following lines of action in national plans: detoxify the environment; decarbonize the economy; decouple economic growth from water use, food waste, energy use; change unhealthy lifestyles; enhance ecosystem resilience.
9. Support the lines of actions with economy-wide strategies: on strengthened environmental governance; integrated evidence based policies; partnerships and platforms on health-environment research, innovations, technologies, innovative financing, and practices; communication and education interventions; and measurement and monitoring frameworks.
10. Finally call upon governments and development and financial partners to scale up investments in platforms, initiatives and programmes that address the environment and health nexus to spearhead the achievement of SDGs.

Introduction

THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT AND THE SUSTAINABLE DEVELOPMENT GOALS: A PARADIGM SHIFT TO A HEALTHY ENVIRONMENT FOR HEALTHY PEOPLE.

Investing in a healthy environment is investing in the health and well-being of current and future generations.

Addressing the links between Environment and Health will be key to achieving the Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) by 2030. The SDGs place people and their well-being at the centre of sustainable development.

The vision of the 2030 Agenda is ambitious and transformational, pledging to leave no one behind. In their structure, the Sustainable Development Goals (SDGs) are **universal**, affecting everyone, everywhere. They aim to address **inequalities** amongst all groups of the population—but especially children, women and the impoverished. They address **human rights** and well-being through a common understanding that a healthy environment is integral to the full enjoyment of basic human rights, including the rights to life, health, food, water and sanitation, and quality of life.

Directly tackling the inter-linkages between environment and human health presents new and interwoven key opportunities to meet the SDGs in a more cost-effective and beneficial manner. To “Ensure healthy lives and promote well-being for all at all ages” (SDG3) – which includes a specific target related to air quality - cannot be achieved over the long term without explicit action on terrestrial ecosystems (SDG15), oceans (SDG14), cities (SDG11), water and sanitation (SDG6),

energy (SDG7), climate change (SDG13) and indirect action on equality (SDG10), gender (SDG5), Education (SDG4) and peace, justice and strong institutions (SDG16).

The SDGs present a key opportunity to address the linkages between environment and health across the various goals and targets, to monitor progress, to bring out positive interactions, to deliver multiple benefits and to avoid contradictions among sector strategies. Investments in preserving, improving or restoring environmental quality can be catalytic and bring multiple benefits across all goals including SDG 3 for enhanced well-being and quality of life.

Figure 1 Sustainable Development Goals and targets: deconstructing environmental sustainability for health and well-being



Environmental Change

ENVIRONMENTAL CHANGE: IMPLICATIONS FOR HEALTH AND HUMAN WELL-BEING

The health and well-being of current and future generations are intrinsically linked to the state of our environment and lifestyles.

Poor air and water quality are among the primary environmental risks⁴ that affect health worldwide. However, exposure to hazardous chemicals, through the inadequate workplace and waste management, climate change⁵, ecosystem degradation, unplanned urbanization and unsustainable lifestyles also add to the burden of disease⁶ and adversely impact health and well-being⁷.

HOUSEHOLD (INDOOR) AND AMBIENT (OUTDOOR) AIR POLLUTION

Air pollution is the world's largest single environmental risk to health: some 7 million people across the world die each year due to everyday exposure to poor air quality caused by emissions from power generation, transport, industrial furnaces, brick kilns, wildfires, dust and sand storms.

In some countries simply preparing a meal is a major risk to health because of indoor air pollution⁸. 4.3 million deaths are attributed to household air pollution (HAP) arising from primary cooking alone; this figure does not account for heating and lighting in homes. Over half the world's population live in urban areas, yet only 12% of cities reporting air quality data meet WHO guidelines on air pollution⁹. Low and middle-income countries in the Asia-Pacific Region had the largest air pollution related disease burden in 2012, with a total of 3.3 million deaths linked to household air pollution and 2.6 million deaths related to outdoor air pollution. However, all regions of

4 The definition of environmental risk used here is the "Likelihood, or probability, of disease, or death resulting from exposure to a potential environmental hazard" (EIONET, GEMET Thesaurus, accessed on 16 January 2016 <https://www.eionet.europa.eu/gemet/concept?cp=2921&langcode=en&ns=1>)

5 EEA (2015) "Are we ready for climate change?"

6 The WHO global burden of disease (GBD) measures burden of disease using the disability-adjusted-life-year (DALY). This time-based measure combines years of life lost due to premature mortality and years of life lost due to time lived in states of less than full health.

7 EEA (2013) Late lessons from early warnings: science, precaution, innovation

8 WHO (2014) Indoor Air Quality Guidelines: Household Fuel Combustion, Geneva (http://www.who.int/indoorair/guidelines/hhfc/IAQ_HHFC_guidelines.pdf?ua=1&ua=1)

9 The WHO database contains data from 1600 cities in 91 countries http://www.who.int/phe/health_topics/outdoorair/databases/cities/en/

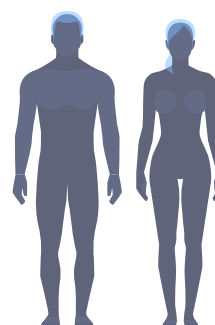


Figure 2 Diseases with the largest total annual health burden from environmental factors in terms of death, illness and disability (Disability Adjusted Life Years – DALYs)

Disease/ injury		DALYs per year due to unhealthy environmental conditions	Ratio of disease burden linked to environmental factors	Main environment risk factor
Diarrhoea		56 Million		Inadequate water, sanitation, hygiene
Lower respiratory infections		29 million		Household and outdoor air pollution
Cardiovascular diseases		23 million		Chemical, air pollution and environmental tobacco smoke exposure
Malaria		19 million		Poor water resource, housing and land use management which fails to curb vector populations effectively.
Other unintentional injuries		21 million		A wide range of home, community and industrial and workplace accidents
Road traffic injuries		15 million		Poor urban design or poor environmental design of transport systems
Cancer		14 million		Exposure to air pollution, pesticides, consumer products, radiation, biological agents, industrial chemicals etc. occurring in the home, the community or in the workplace, as well as environments which are not conducive to physical activity
Chronic obstructive pulmonary disease		12 million		Use of polluting fuels for cooking, outdoor air pollution and exposures to workplace dusts and fumes
Perinatal conditions		11 million		Exposure of mothers to air pollution, tobacco smoke, pesticides and other chemicals; unsafe water and inadequate sanitation.

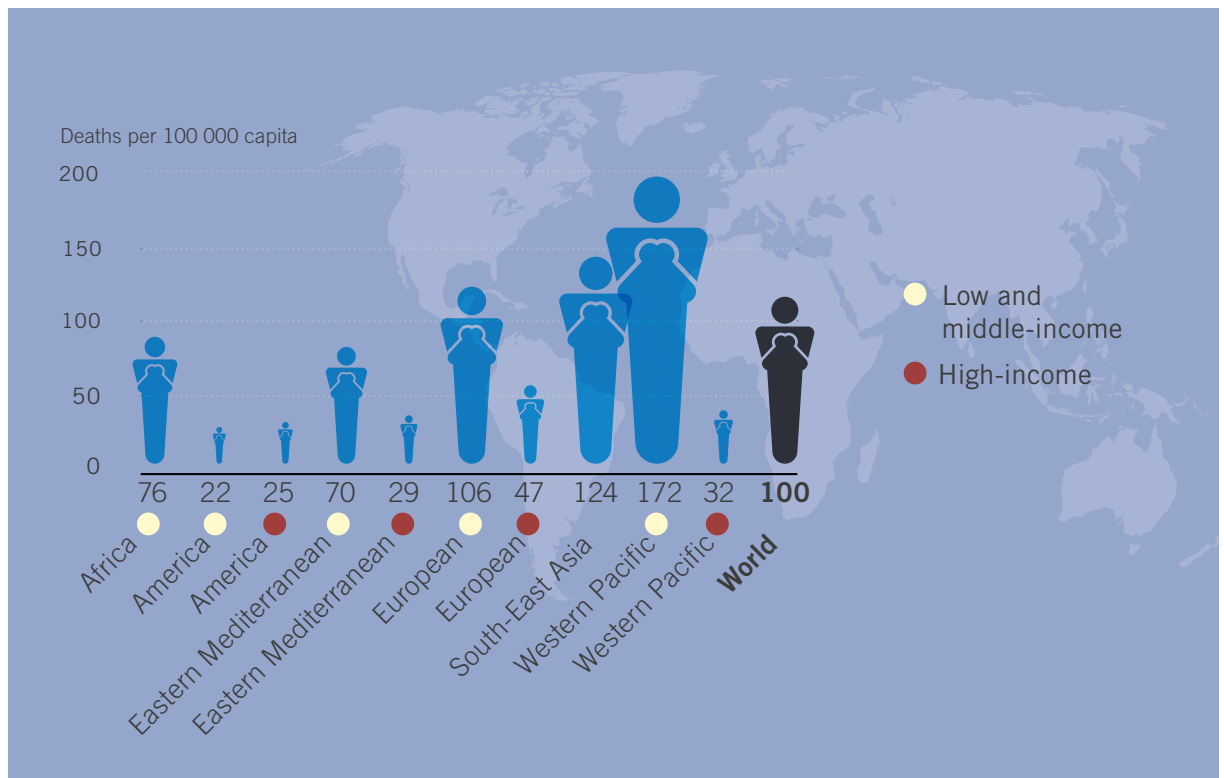
Sources: WHO (2015). Preventing diarrhoea through better water, sanitation and hygiene. Exposures and impacts in low- and middle-income countries. Geneva; WHO (2015). „The Global Health Observatory.“ Retrieved 11 June 2015; WHO (2014). Burden of disease from the joint effects of household and ambient air pollution for 2012. Summary of results; WHO (2006) Preventing diseases through healthy environment- Data is from 2002

the world are significantly affected. For example, the high levels of air pollution which have been reported in a few places of Sub-Saharan Africa are likely to be an underestimate due to the limited coverage of comprehensive air quality monitoring across the region.

Transboundary flows of air pollution are also a matter of concern, hindering countries as they attempt to meet their own goals on ambient environmental quality and public health. Studies suggest that the sum of the health impacts of transported pollution in foreign nations downwind of a source can sometimes be larger than the health impacts of emissions in the source region itself.¹⁰

The challenge is that nearly all of the 4.3 million deaths attributable to household air pollution (HAP) occur amongst people living in low- and middle-income countries¹¹. The primary reliance of 3 billion people, mostly in rural communities, on solid fuels (largely biomass and coal based) paired with inefficient cooking stoves, is a major cause of HAP, leading to respiratory and cardiopulmonary diseases, especially among women and children. For children, this is also undermining their education¹². The consequences of outdoor air pollution are similar to HAP as well as other non-communicable diseases (NCDs) such as cancer. Exposure to ozone, a trigger for asthma further adds to this health burden. Projections based on a business-as-usual emission scenario suggest that the

Figure 3 Deaths per capita attributable to joint effects of household and ambient air pollution in 2012, by region



Source: WHO

10 UNECE (2010) Hemispheric Transport of Air, Task Force on Hemispheric Transport of Air Pollution acting within the framework of the Convention on Long-range transboundary Air Pollution, Air Pollution Studies n° 17 (http://www.htap.org/publications/2010_report/2010_Final_Report/EBMeeting2010.pdf)

11 WHO (2014) *ibid.*

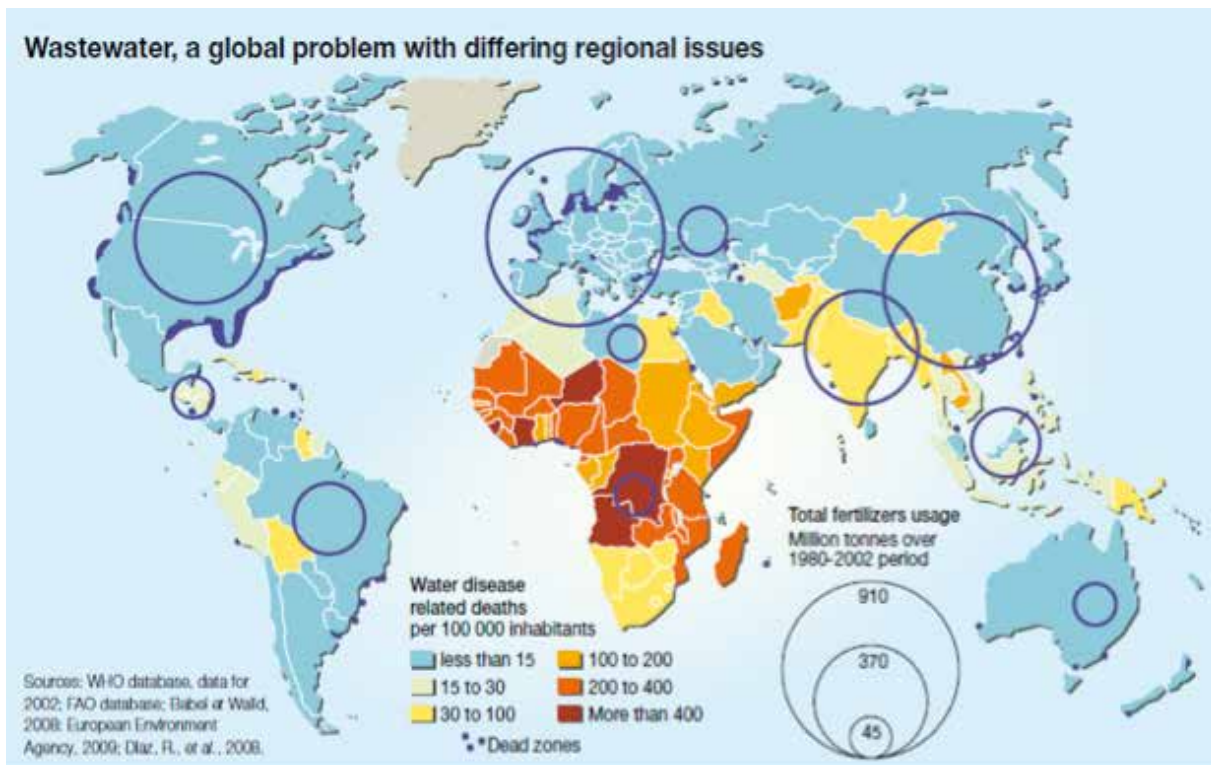
12 Miller, S. (2013) « The effects of air pollution on educational outcomes: evidence from Chile » Inter-American Development Bank Working Paper Series 468 (<https://publications.iadb.org/bitstream/handle/11319/4756/The%20Effects%20of%20Air%20Pollution%20on%20Educational%20Outcomes%3a%20Evidence%20from%20Chile.pdf;jsessionid=309B6F343B9A4023D24DE31674EF29D3?sequence=1>).

contribution of outdoor air pollution to premature mortality could double by 2050¹³. Household air pollution, or individuals living in cities with a conglomerate of polluting sources often experience the greatest health impacts due to exposure and proximity to air pollution sources. Particulate matter from wildfires and dust and sand storms are also a health risk, but to date there are few scientific studies which have looked at this explicitly.

LACK OF ACCESS TO CLEAN WATER AND SANITATION

Between 1990 and 2015, 2.1 billion people gained access to improved sanitation worldwide. However, fulfilling the human right to water and sanitation requires that all people have access to affordable, safe and acceptable water and sanitation. This higher standard is reflected in SDG 6 which calls for States to “ensure availability and sustainable management of water and sanitation for all”. **Today, 2.4 billion people are still using unimproved sanitation facilities, including 946 million people who, according to the WHO, still practice open defecation¹⁴.** In Africa, 42% of health facilities do not have access to an improved water source within 500 metres. Unsafe wa-

Figure 4 Access to safe water and wastewater management is a leading health risk, with disproportionate impacts on the impoverished and children.



Source: UNEP (2010) Sick Water - The Central Role of Wastewater Management in Sustainable Development

13 Lelieveld, J. Evans, JS., Fnais, M., Giannadaki, D. and Pozzer, A. (2015) “The contribution of outdoor air pollution sources to premature mortality on a global scale” Nature 525, 367–371.

14 WHO/UNICEF (2015) Progress on Sanitation and Drinking Water – 2015 update and MDG assessment.

ter, inadequate sanitation or insufficient hygiene result in 3.5 million deaths worldwide, representing 25% of the premature deaths of children younger than 14¹⁵. Indeed, developing countries represent more than 97% of the total deaths related to poor water, sanitation and hygiene¹⁶.

Poor water quality and sanitation are linked to transmission of diseases such as cholera, diarrhoea, dysentery, hepatitis A, typhoid and polio, as well as persistent stunting due to sub-clinical bacterial infections¹⁷. Lack of access to clean water and sanitation causes 58% of cases of diarrhoeal diseases in low and middle-income countries. Almost 1,000 children per day die from diarrhoeal diseases due to poor sanitation, poor hygiene, or unsafe drinking water: diarrhoeal diseases are the third leading cause of death of children under 5¹⁸. In the European region's low- and middle-income countries, about 10 people per day die from diarrhoea caused by inadequate water, sanitation and hand hygiene¹⁹.

Sanitation is part of a growing global issue linked to wastewater management. Only 20% of globally produced wastewater—domestic, industrial and from agriculture—receive proper treatment²⁰, leading to two principal water quality problems: chemical (and specifically nutrient) contamination and microbial pollution²¹. Excessive nutrient in fresh and coastal receiving waters leads to eutrophication, negatively affecting ecosystems, and freshwater and marine resource productivity, thereby impacting livelihoods. High concentrations of nitrates and nitrites also affect health negatively²².

CHEMICAL POLLUTION

Chemicals are important for development and are responsible for advances in health, but **certain types of chemicals, such as persistent organic pollutants (POPs), can build up to dangerous levels in humans and wildlife causing adverse reproductive, developmental, immunological, hormonal, and carcinogenic effects.** Exposure to endocrine disrupting chemicals (EDCs) such as dioxins, furans, PCB, DDT and potential EDCs (phthalates, bisphenol A) can occur through food, water, dust, air and skin contact with various materials. EDCs can be found among chemical additives in electronics and electrical equipment, household cleaning products, textiles and furniture²³.

Although information is only available for a small number of chemical exposures, it is estimated that at least 500,000 deaths annually are caused directly or indirectly by chemicals, and probably many more. There is a much larger loss in terms of Years Lived with Disability.

Some 107,000 people die annually from exposure to asbestos and 143,000 from exposure to lead. Respiratory cancers cause 1.6 million deaths per year²⁴. Of this, 9% – or circa. 135,000 deaths – of the global disease burden due to lung cancer are estimated to be linked to occupational exposure to chemicals and a proportion due to air pollution exposure²⁵.

Globally in 2013, 3.3 million cases of human poisonings were reported (likely to be underreported) – almost the same as those injured from assaults with firearms (3.6 million)²⁶. On a yearly basis, it is estimated that excessive exposure to and inappropriate use of pesticides contribute to poisoning a minimum of 3 million people, especially impoverished rural workers²⁷. The impacts on health from

15 Prüss-Üstün Annette and al. (2008) Safer water, better health: costs, benefits and sustainability of interventions to protect and promote health, WHO, Geneva.

16 Prüss-Üstün Annette and al. (2008) *ibid*.

17 WHO (2014) "WHA Global Nutrition Targets 2025: Stunting Policy Brief" (http://www.who.int/nutrition/topics/globaltargets_stunting_policybrief.pdf)

18 WHO/UNICEF (2015) Joint Monitoring Programme for Water Supply and Sanitation – 2015 Fact sheet.

19 WHO (2015). Preventing diarrhoea through better water, sanitation and hygiene. Exposures and impacts in low- and middle-income countries. Geneva

20 UNEP (2010) Sick Water - The Central Role of Wastewater Management in Sustainable Development (<http://www.grida.no/publications/rrr/sickwater/>)

21 UN Water (2014) A Post-2015 Global Goal for Water: Synthesis of key findings and recommendations from UN-Water

22 EEA (2013) Late lessons from early warnings: science, precaution, innovation

23 EEA (2013) *ibid*

24 WHO (2015). „The Global Health Observatory.“ Retrieved 11 June 2015.

25 WHO (2015) "Role of the health sector in the sound management of chemicals", report by the Secretariat (EB138/18)

26 Global Burden of Disease Study 2013 Collaborators (2015) "Global, regional, and national incidence, prevalence, and years lived with disability for 301 Acute and chronic diseases and injuries in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013" *The Lancet*, Vol. 386, No. 9995, p743–800 (<http://www.thelancet.com/global-burden-of-disease>)

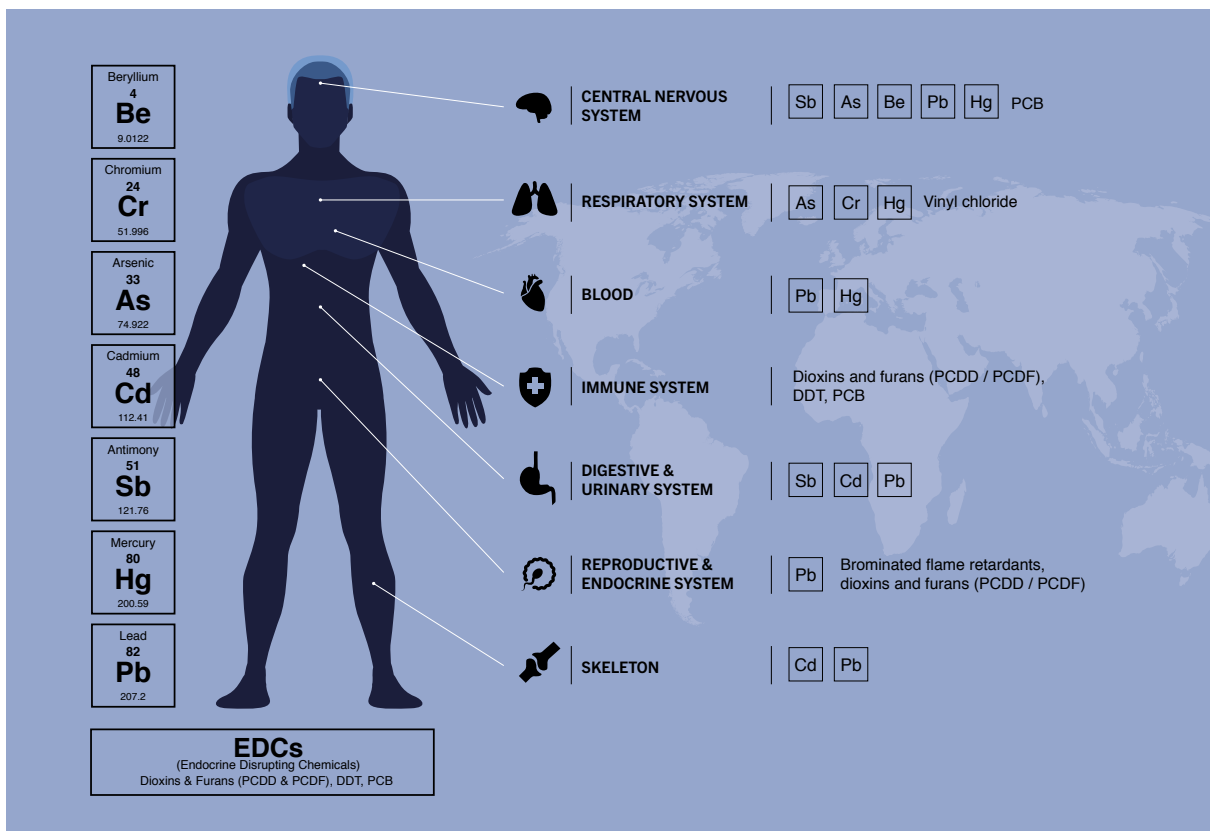
27 Jeyaratnam, J. (1990) "Acute pesticide poisoning: a major global health problem" *World health statistics quarterly*. Volume:43 Issue:3 Pages:139-44. More recent data for some countries can be found at WHO (2008) „Acute pesticide poisoning: a proposed classification tool“ *Bulletin of the World Health Organisation*, vol 86:3

activities such as mining particularly affect vulnerable communities in Africa, Latin America and Asia.

Meanwhile, heavy metals such as lead, chromium, and cadmium contaminate agricultural soil, entering farm operations through application of sewage sludge as fertilizer, and the use of metal-based pesticides. The agricultural sector is also the world’s largest user of antibiotics, using 70% of all that is manufactured²⁸. Over-use of pharmaceutical products (antibiotics and antimicrobial agents) – both in human medicine and veterinary practice – may contribute to creating resistant strains of microbes in humans, posing serious threats to health²⁹.

Children are particularly susceptible to the negative health impacts of chemicals. Impacts on mental health are particularly significant. For example, mercury and lead exposure in utero and early in life can result in mental retardation, seizures, vision and hearing loss, and delayed development³⁰. The consumption of fish contaminated with methylmercury is by far the most significant source of mercury exposure in humans. About 50% of global anthropogenic mercury emissions are from Asia and the Pacific, mostly from coal-burning power plants, industrial boilers and artisanal small-scale mining³¹.

Figure 5 Hazardous chemicals and wastes and selected impacts on human health



Source: Basel, Rotterdam and Stockholm conventions

28 Mellon & Fondriest (2001), 'Hogging it: estimates of animal abuse in livestock', Nucleus, 23:1-3, Cited in (2015) TEEB for Agriculture & Food: an interim report, United Nations Environment Programme, Geneva, Switzerland
 29 WHO (2014) Antimicrobial resistance: global report on surveillance, Geneva, Switzerland, Cited in TEEB (2015) TEEB for Agriculture & Food: Towards a Global Study on the Economics of Eco-Agri-Food Systems, United Nations Environment Programme, Geneva, Switzerland
 30 EEA (2013) *ibid*.
 31 In French Polynesia where adults on average consume 3 times more fish than the global average, mercury concentration of fish samples tested over 1999 to 2011 showed levels that are much higher than those considered permissible. Dewailly, E. et al. (2008) "High fish consumption in French Polynesia and prenatal exposure to metals and nutrients" Asia Pacific Journal of Clinical Nutrition 7 (3): 461-470

Box 1 – MICRO AND NANO MATERIALS

Micro and nano materials are an emerging issue of concern. In marine ecosystems, these forms of plastics may not be biodegradable, as they can sink to the ocean floor where they are not exposed to the sunshine required for biodegradation, and can then stifle life on the seabed. Typically, the impacts of micro-plastics on human health comes from dietary exposure via marine foodstuffs, contaminated water and inhalation of contaminated air. Since nanomaterials are in the same size range as ultrafine particles, concerns have been raised on whether they could have similar hazardous properties. Nanoisation can also expose humans to heavy metals levels exceeding advisory limits; for example silver nanoparticles incorporated in textiles, can be released during washing.

**POORLY MANAGED HAZARDOUS WASTE AND OTHER WASTE**

Global municipal solid waste generation levels are expected to double by 2025, at different rates according to regions and countries: the higher the income level and rate of urbanization, the greater the amount of solid waste produced³². **Some UN Habitat health data indicate twice as high rates of diarrhoea and six times more acute respiratory infections for children living in households where solid waste is dumped or burned in the yard** compared to households in the same cities which benefit from a regular collection service³³. Uncollected waste may also result in blocked drains, which aggravate floods and spread infectious disease.

Uncontrolled dumpsites, and in particular the mixing of hazardous and other wastes, can cause diseases in neighbouring settlements and among waste workers, where life expectancy is significantly shorter than the rest of the population³⁴. The 50 biggest active dumpsites affect the daily lives of 64 million people³⁵.

Electronic waste (e-waste) is the fastest growing type of waste. Forty-two million tonnes of e-waste are generated every year. The unsound dismantling, material recovery and final disposal of e-waste, containing various hazardous contents such as heavy metals and EDCs, can result in major environmental and human health impacts through the release of hazardous substances into soil, water and air³⁶.

Further reducing the amount of transboundary movements of hazardous and other wastes is also crucial, as they represent important challenges endangering developing countries with wastes they do not have the capacity to manage safely.

32 Hoornweg Daniel, Bhada-Tata Perinaz (2012) What a Waste – A Global Review of Solid Waste Management, The World Bank, Urban Development Series Knowledge Paper, March 2012, n°15

33 UN Habitat (2009) Solid Waste Management in the World's Cities

34 Data from UN Habitat indicate, for example, that life expectancy of waste pickers in Mexico is 39 years old, compared to an average of 69 years old for the rest of the population. (UN Habitat (2009) Solid Waste Management in the World's Cities).

35 UNEP (2015) Global Waste Management Outlook

36 Planet RE:think 2012 (<http://planetrethink.com/>)

NATURAL DISASTERS

Floods, droughts and windstorms are the most frequently occurring natural disaster events; they account for almost 90% of the 1,000 most disastrous events since 1990³⁷. **Each year around 42 million human life years are lost in internationally reported disasters, a burden on human well-being comparable to diseases such as tuberculosis**³⁸. The elderly are particularly vulnerable, as is reflected in data from five major natural disasters that show more than half of the deaths associated with these events occurred among people aged 60 years and older³⁹.

Significant psychological impacts follow disaster in terms of depression and demotivation if disasters are recurrent, and the inability to rebuild lives. Loss of housing, reduced farm and non-farm assets, unemployment, increased under nutrition and associated poor health, forced displacement and migration all contribute to reduced social and mental well-being.

While improvements in disaster risk management have led to reductions in mortality in some countries over the last decade, economic losses are now reaching an average of US\$250 billion to US\$300 billion each year⁴⁰ with inevitable impacts on food security, health care and human well-being amongst the most impoverished.



37 United Nations (2014) Water and Disaster Risk. A Contribution by the United Nations to the consultation leading to the Third UN World Conference on Disaster Risk Reduction (http://www.preventionweb.net/files/38763_water.pdf).

38 UNISDR (2015). Making Development Sustainable: The Future of Disaster Risk Management. Global Assessment Report on Disaster Risk Reduction, Geneva.

39 WHO (2015) World Report on Ageing and Health, Geneva

40 UNISDR (2015). Ibid.

Global Changes and Trends

CLIMATE CHANGE

Climate change will impact the environmental and social determinants of health, from availability of clean air and water, to heat shocks, food security and shelter, and has the potential for wide ranging systemic impacts on food availability and large scale disasters. It has been identified as “the defining issue for public health during this century”⁴¹ and “the biggest global health threat of the 21st century”⁴². Flooding events related to extremes of precipitation are occurring with growing frequency and intensity. Local changes in temperature and rainfall have already altered the distribution of disease vectors such as ticks, mosquitoes and sandflies, which will have a significant impact on the occurrence of disease outbreaks of malaria, dengue fever and other tropical disease⁴³. Crop yields are projected to decrease – in Central Asia this could be as high as 30% and in southern parts of Europe 25% under a high-emission scenario⁴⁴. Already, over half a billion children live in extremely high flood occurrence zones, and nearly 160 million children live in areas of high, or extremely high, drought severity⁴⁵.

Climate change is also an accelerator of land degradation. It is estimated that 12 million hectares of productive land are being lost annually to land degradation and desertification⁴⁶. Desertification can affect human health through complex pathways, including higher threats of malnutrition from reduced food and water supplies; more water- and foodborne diseases that result from poor hygiene and a lack of clean water; and respiratory diseases caused by atmospheric dust from wind erosion and other air pollutants. Cautious estimates from the World Health Organization (WHO) indicate that 250,000 additional deaths could potentially occur each year between 2030 and 2050 as a result of climate change⁴⁷.



41 Chan, M. (2007) Address to the 2007 David E. Barnes Global Health Lecture, Bethesda (http://www.who.int/dg/speeches/2007/20071211_maryland/en/)

42 Watts et al. (2015) Health and climate change: policy responses to protect public health. *The Lancet*, 386:1006, 1861-1914.

43 WHO/CBD (2015) Connecting Global Priorities: Biodiversity and Human Health. A State of Knowledge Review.

44 IPCC. (2007) https://www.ipcc.ch/publications_and_data/ar4/wg2/en/tssts-4-2.html

45 UNICEF (2015) Unless we act now. The Impacts of climate change on children

46 UNCCD (2015) Land Matters for Climate. Reducing the Gap and Approaching the Target

47 Hales S, Kovats S, Lloyd S., Campbell-Lendrum D. (2014) Quantitative risk assessment of the effects of climate change on selected causes of death, WHO

Box 2 – POISONED CHALICE: TOXIC CROPS IN THE ERA OF CLIMATE CHANGE⁴⁸

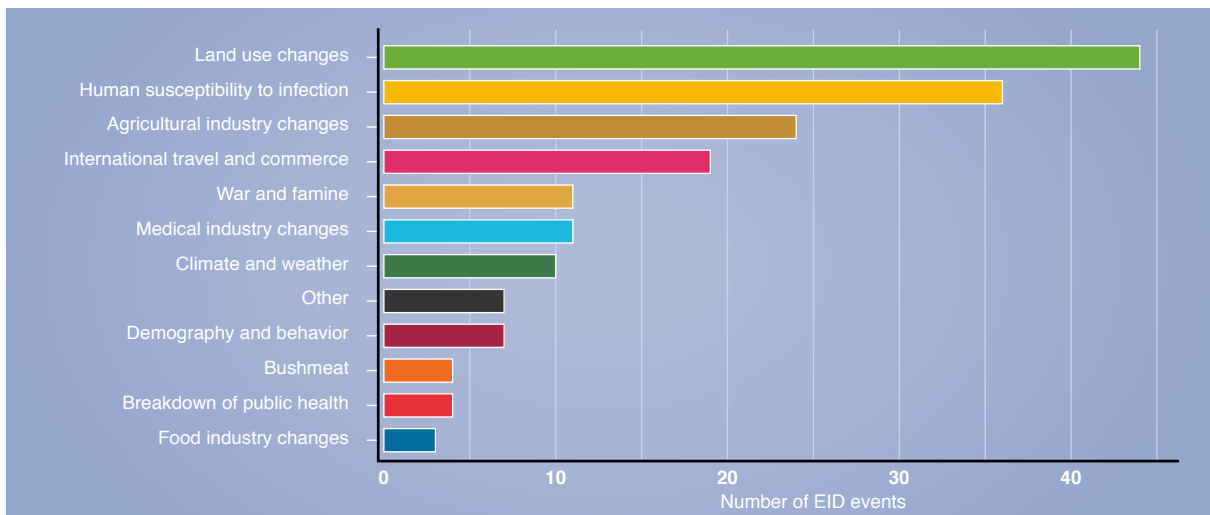
Of concern is the toxicity for humans and livestock of some drought-resistant varieties of key staple crops which may be exacerbated by climate change. When some crops become unavailable or inaccessible as a result of food prices for example, people in low-resource settings may be forced to consume highly monotonous diets or rely heavily on drought-resilient marginal crops or wild plants.

This may introduce additional health risks: extreme climatic conditions can drive the accumulation of chemical compounds harmful to human health in some of these crops or plants, such as grass pea. Worldwide, over 100,000 people suffer from paralysis caused by ODAP (oxalyldiaminopropionic acid).

ECOSYSTEM DISRUPTION, LAND-USE CHANGE, AND ZOOBOTIC DISEASES

15 out of 24 categories of ecosystem services are in decline, with overharvesting of resources and land-use change remaining as key pressures, and four of the nine planetary boundaries (climate change, loss of biosphere integrity, land-system change, altered biogeochemical cycles (phosphorus and nitrogen) have been crossed⁴⁹. Approximately 15,000 species (or 21%) of global medicinal plant species are now endangered as a result of overharvesting and habitat loss⁵⁰ and invasive alien species, likely to be exacerbated by climate change and global trade, are already posing direct threats to native and endemic species and ecosystem functioning⁵¹. Overharvesting, land-use change, unsustainable use of – and lack of fair access to – genetic resources, and climate change are also among the major drivers of the decline in wild

Figure 6 Drivers of emerging infectious diseases from wildlife



Source: Loh et al. (2015) "Targetting Transmission Pathways for Emerging Zoonotic Disease Surveillance and Control" *Vecto-borne and Zoonotic Diseases*, vol. 15, number 7, quoted in WHO/CBD (2015) *ibid*.

EID = Emerging Infectious Diseases

48 Yan, YE. et al. (2006) "Lathyrus sativus (grass pea) and its neurotoxin ODAP" *Phytochemistry*, 67, 107–121

49 Steffen et al. (2015) *Planetary Boundaries: Guiding human development on a changing planet*. Science Vol. 347 no. 6223; Millennium Ecosystem Assessment (2005) *Ecosystems and Human Well-being: Synthesis*. Island Press, Washington, DC; G.M. Mace et al. (2014) Approaches to defining a planetary boundary for biodiversity. *Global Environmental Change* 28, 289-29.

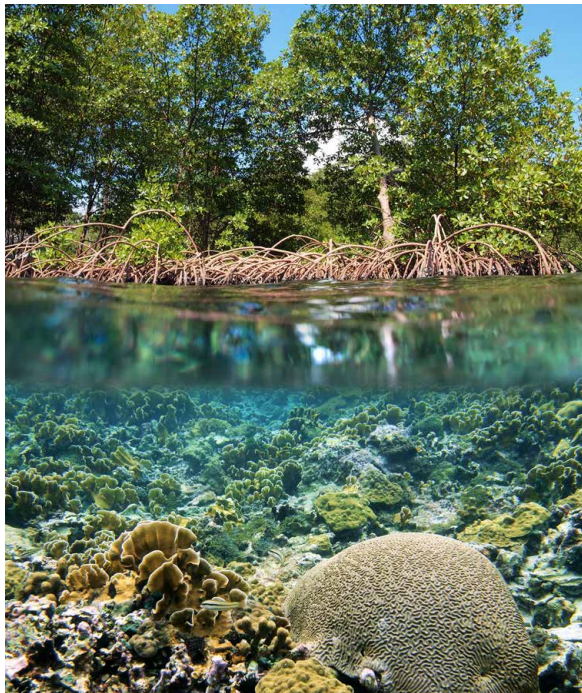
50 Schippmann et al. (2006) "A comparison of cultivation and wild collection of medicinal and aromatic plants under sustainability aspects" in Bogers R.J. and al. (eds) (2006) *Medicinal and Aromatic Plants: Agricultural, Commercial, Ecological, Legal, Pharmacological and Social Aspects*, Wageningen UR, vol. 17

51 WHO/CBD (2015) *ibid*.

plant resources, including those used commercially for food and medicinal purposes⁵².

Zoonotic diseases, such as avian influenza, Rift Valley fever and Ebola, have also become the source of major pandemics. The burden of disease from foodborne pathogens, such as Salmonella and Listeria is now estimated to be comparable to malaria or tuberculosis, responsible for 200,000 deaths per year, almost entirely in developing countries⁵³. (Figure 6).

The degradation of coastal zones and watersheds in particular exacerbate the effects of natural disasters such as floods and storms, while land degradation severely exacerbate the effects of drought and cause more flash floods⁵⁴. Correspondingly, not only are important ecosystem services such as pollination lost, but also natural pest control, access to herbal and traditional medicines, which are important for large shares of the world population, and carbon sinks⁵⁵.



Global biodiversity is an insurance policy for human health. Genetic diversity strengthens ecosystem functioning and resilience, contributing to current and future well-being. The loss of biodiversity has a negative impact on agricultural production, pollination and pest control, the complex effects on the spread and regulation of zoonotic diseases, human immune dysfunction due to reduced microbial diversity⁵⁶.

The rapidly growing body of research on the role in human health of microorganisms – the least visible yet the most ubiquitous form of biodiversity on Earth- shows that the interactions of microbes within their complex ecological communities have significant implications for human physiology and susceptibility to disease. The human microbiome, found in the gut, respiratory and urinary tracts and on the skin, is continuously linked to environmental microbial ecosystems and can contribute to, or modulate, disease risk, in particular non-communicable diseases which have become the leading cause of death worldwide. Some NCDs, including autoimmune diseases, type 1 diabetes, multiple sclerosis, allergic disorders, eczema, asthma, inflammatory bowel diseases and Crohn’s disease may be linked to depleted microbial diversity in the human microbiome due to reduced contact of people with the natural environment. Antibiotic and antimicrobial use can alter the composition and function of the human microbiome, and limiting their unnecessary use would provide biodiversity and health benefits. Innovative designs of cities and dwellings that increase exposure to the microbial biodiversity can therefore help avoid the loss of human physiological and immune functioning.⁵⁷

Deforestation, intensive agricultural practices, and rapid population growth result in land-use change and increase the likelihood of interactions between humans and wildlife, providing conditions that are conducive to the spread of vector-borne diseases and zoonoses.

52 Hawkins 2008; Ford et al. 2010. quoted from WHO/CBD (2015) *ibid.*.

53 Havelaar et al (2015) WHO Global Estimates and Regional Comparisons of the Burden of Foodborne Disease.

54 UNEP (2010) High mountain glaciers and climate change - Challenges to human livelihoods and adaptation

55 UNEP (2009) Blue Carbon.

56 WHO/CBD (2015) *ibid.*

57 WHO/CBD (2015) *ibid.*

URBANIZATION, DEMOGRAPHIC TRENDS AND LIFESTYLES

By 2050, it is expected that more than half of the world's population will live in cities⁵⁸. More effective urban policies, especially relating to solid waste disposal, air quality, provision of safe water and sanitation, and injury prevention combined with healthier lifestyles- will play an increasingly important role in public health and quality of life. As highlighted in the 2030 agenda, a lack of legal access to resources and basic commodities and services, including the rule of law and repeated exposure to disasters and conflict, leads to an overall decline in both physical and mental health⁵⁹.

Urbanization can lead to dietary changes, including an increased risk of obesity and disease. Some 39% of the global adult population is estimated to be overweight or obese⁶⁰ with associated obesity-related health conditions rising rapidly. All age groups and regions are affected by non-communicable diseases in both urban and rural regions (NCDs). Out of the 38 million people who died from NCD in 2012, three quarters live in low- and middle-income countries, 42% of deaths were premature and avoidable, including 3.2 million deaths which can be attributed to insufficient physical activity and additional deaths due to unhealthy diets⁶¹. The number of overweight or obese adults living in developing countries tripled from 250 million in 1980 to 904 million in 2008. As indicated above, human health depends on exposure to a healthy microbial biome and provides a strong medical rationale for increased provision of biodiversity and green spaces in modern cities.⁶²

Cities can be very noisy areas. Reduced sleep quality from noise and/or exposure to noise during the day has been identified as reducing the quality of life for a significant portion of the global population⁶³. Approximately 40% of the population in EU countries is exposed to road traffic noise at levels exceeding 55 decibels, and by the beginning of the 21st century, two-thirds of the world's population lived in areas where the night sky was classified as light polluted⁶⁴. Whilst the health risks of night-time exposure to both light and noise are yet to be fully understood, there is evidence that it can lead to various health effects such as elevated risk of breast or prostate cancer, obesity, diabetes, depression and sleep disorders, and impacts on mental development in the young.



58 UNDESA (2014) World Urbanization Prospects: the 2014 Revision, Highlights

59 WHO (2012) Risks to Mental Health: an overview of vulnerabilities and risk factors, Background paper by WHO Secretariat for the development of a comprehensive mental health action plan (http://www.who.int/mental_health/mhgap/risks_to_mental_health_EN_27_08_12.pdf)

60 WHO, Global Health Observatory, data from 2014, accessed on 16th January 2016

61 WHO (2014) Global Status Report on Non-Communicable Diseases

62 WHO/CBD (2015) *ibid.*

63 WHO/JRC (2011) Burden of disease from environmental noise. Quantification of healthy life years lost in Europe.

64 Lyytymäki J (2015) "Towards eco-efficient and enjoyable lighting", UNDESA,

Vulnerability

Vulnerability to environment and health inequities are linked to many social and economic factors: the socio-economic position of individuals, in relation to social class, age, gender and ethnicity, as well as education, occupation, livelihood and income levels. These factors determine where people live, what they eat, how and when in the life cycle they are exposed to pollution, and what options they have to change their conditions. Poor people, children and elderly are particularly at risk. Gender inequality with regards to environment-related health burdens are exacerbated by differential exposures and vulnerabilities to diseases, disabilities and injuries.

The world's poorest 3.5 billion people largely rely directly on the environment for their basic services (water, food, shelter etc.). Children are particularly susceptible to the negative health impacts of their environment. While the environmental burden of disease represents a quarter of the global burden of disease, it rises to a third for children (Figure 7). Almost one third (30%) of all deaths from foodborne diseases are in children under the age of five years, despite the fact that they make up only 9% of the global population⁶⁵. It is estimated that a mother can pass as much as 33% of her chemical body burden to her child⁶⁶. In addition, due to their rapid growth and development and greater exposure relative to body weight, children are particularly impacted by exposure to chemicals and pollutants.

Climate change impacts add to this vulnerability. Over half a billion children live in extremely high flood occurrence zones, and nearly 160 million children live in areas of high, or extremely high, drought severity⁶⁷. Many poor

countries are also particularly vulnerable to climate change impacts as are some indigenous groups, peasants and pastoralists.

Communities that are dependent on degraded landscapes – including overgrazed, heavily deforested, drought prone, desertified and severely eroded lands – are exposed to famine, loss of shelter and medicinal plants and are also highly vulnerable to slow-onset disasters. The poorest can become trapped in a chronic pattern of poor well-being associated with living in degraded environments, or be forced to migrate to rapidly urbanized areas or refugee camps. By the end of 2014, there were 56 million refugees and internally displaced people⁶⁸. The growing understanding of the links between environmental degradation, conflicts over natural resources, climate change and migration and well-being has now become the focus of recent policy dialogues⁶⁹ and is captured in SDG 10 target 7 to implement responsible migration policies.

65 WHO. 2015. WHO estimates of the global burden of foodborne diseases: foodborne disease burden epidemiology reference group 2007-2015, Geneva (http://www.who.int/foodsafety/publications/foodborne_disease/fergreport/en/).

66 UNDP/GEF (2015) Chemicals and waste management for sustainable development

67 UNICEF (2015) Unless we act now. The Impacts of climate change on children.

68 UNHCR 2015 www.unhcr.org. 69 IDMC 2015 Understanding the root causes of displacement: towards a comprehensive approach to prevention and solutions. Briefing Paper

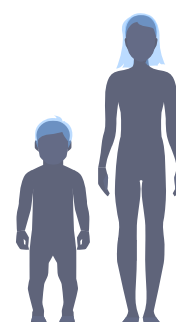









Figure 7 Environmental burden of disease for children less than 14 years of age

Disease/ injury		DALYS per year due to unhealthy environmental conditions	Main environment risk factor
Diarrhoea		43 million	Inadequate water, sanitation, hygiene
Lower respiratory infections		29 million	Household and outdoor air pollution
Malaria		18 million	Poor water resource, housing and land use management which fails to curb vector populations effectively.
Perinatal conditions		11 million	Air pollution, poor water, sanitation and hygiene
Unintentional injuries		8 million	A wide range of home and community accidents
Drowning		4 million	Inadequate safety measures in the home and community environment, climate change
Road traffic injuries		4 million	Poor urban design or poor environmental design of transport systems

Sources: WHO (2015). Preventing diarrhoea through better water, sanitation and hygiene. Exposures and impacts in low- and middle-income countries. Geneva; WHO (2015). „The Global Health Observatory.“ Retrieved 11 June 2015; WHO (2014). Burden of disease from the joint effects of household and ambient air pollution for 2012. Summary of results. Geneva; WHO (2006) Preventing diseases through healthy environment- Data is from 2002

Multiple Benefits of a Healthy Environment

Inaction on the environmental-health front thus has moral implications, but also legal and economic ones. The economic implications of environmental risks to health globally are substantial. The economic loss due to the lack of access to safe drinking water and sanitation for Africa alone is estimated to be about 5% of GDP. Although not all of them are related to environment factors, work-related health problems (including chemicals and injuries) result in an economic loss of 1.8 – 6 % of GDP, averaged at 4%⁷⁰. Estimates of the health cost of air pollution in 50 countries in the WHO Europe region⁷¹ (incl. Russia, Turkey, Caucasus and parts of Central Asia) range widely (1-33%) but can be averaged ca. 10%. However, mindful that in terms of global GDP, the health burden and health costs are not evenly distributed amongst countries, these cannot simply be averaged. Given that air pollution is a major issue also in the US⁷², Europe, China and India among other countries, it can be assumed that conservative combined estimates of these factors alone (excluding water related costs) are likely somewhere between 5-10% of GDP, with air pollution being on average the most significant.

Globally, it is estimated that neurodevelopment effects of exposure to lead cause economic losses of US\$977 billion in middle- and low-income countries⁷³. While re-

search on the health impacts from exposure to agrochemicals is limited, evidence is starting to build. In the EU alone, pesticide exposure's annual health and economic costs is estimated at roughly US\$127 billion⁷⁴. The Ammonium Nitrate explosion in Toulouse (2001, France), resulted in costs of US\$1.8 billion. The oil storage depot explosion in Buncefield (2005, UK) total cost was estimated at US\$1.5 billion.

The transition towards a healthy environment for all can yield significant benefits in terms of development, poverty reduction and reduced risks to human health. The Vienna Convention for the Protection of the Ozone Layer (1985) and its Montreal Protocol on Substances that Deplete the Ozone Layer (1987) resulted in the successful phase-out of nearly 100 ozone-depleting substances (ODS). As a result, up to 2 million cases of skin cancer and many millions of eye cataracts may be prevented each year by 2030. Moreover, by limiting the loss of stratospheric ozone, the Montreal Protocol helps to safeguard food security by reducing ultraviolet damage to crops and marine ecosystems. Cumulative estimates from 1987 to 2060 show that the global phase-out of chlorofluorocarbons (CFCs) alone will result in an estimated US\$1.8 trillion in global health benefits and almost US\$460 billion in avoided damages to agriculture, fisheries and materials⁷⁵.

70 Nenonen et al. (2015) *Global Estimates of Occupational Accidents and Fatal Work-Related Diseases in 2014*

71 WHO (2015) *Economic cost of the health impact of air pollution in Europe: Clean air, health and wealth*

72 Muller, N. (2014) "Boosting GDP growth by accounting for the environment". *Science*, Volume: 345 Issue: 6199 Pages: 873-874

73 Attina T., Trasande L., (2013) « Economic costs of childhood lead exposure in low- and middle-income countries», *Environmental Health Perspectives*, Vol. 121, issue 9. (http://ehp.niehs.nih.gov/1206424/?utm_source=rss&utm_medium=rss&utm_campaign=1206424)

74 Trasande L. et al. (2015) 'Estimating burden and disease costs of exposure to endocrine-disrupting chemicals in the European Union', *The Journal of Clinical Endocrinology and Metabolism*, 100(4), 1245-55

75 UNEP (2015) *The Montreal Protocol and Human Health. How global action protects us from the ravages of ultraviolet radiation*

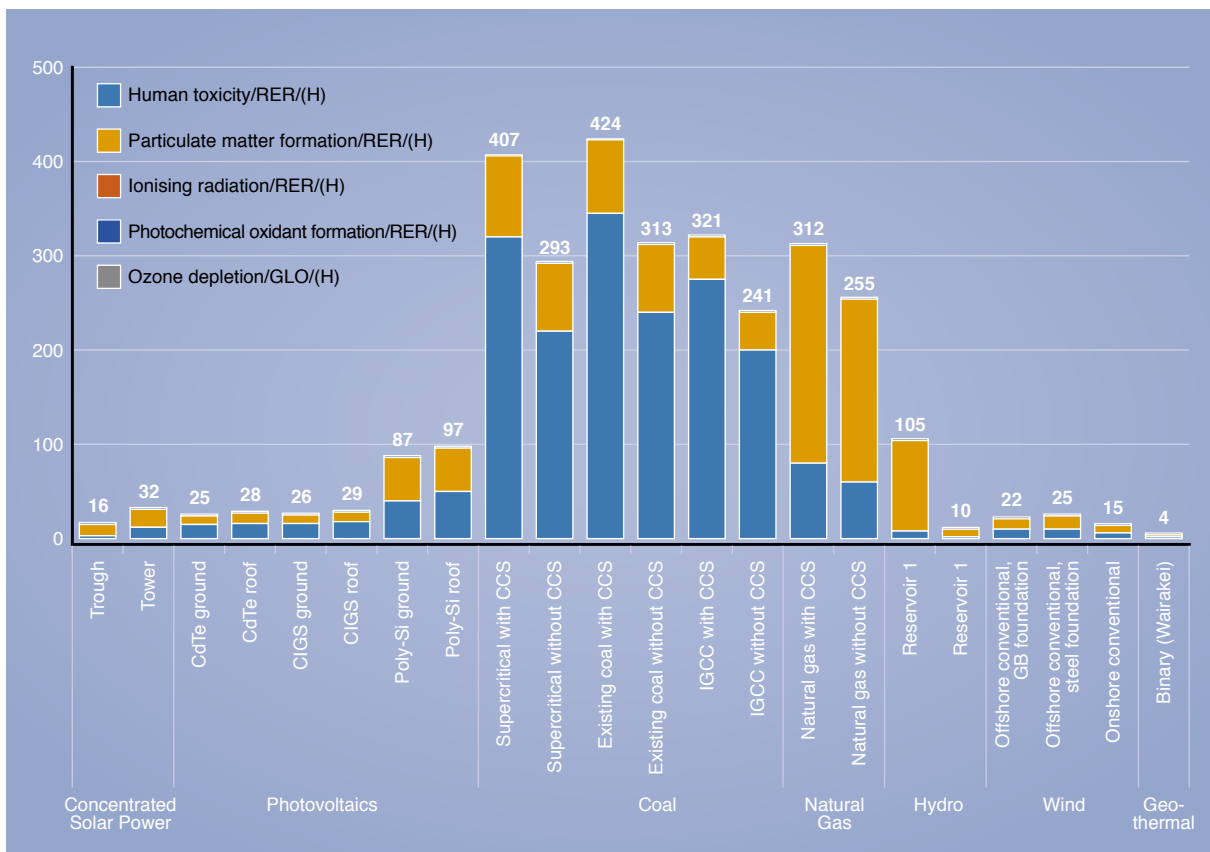
Global and national projections indicate the potential for the immense results from action addressing environment and health linkages:

- The WHO estimates that investments in preventative workplace health programmes of around US\$18-60/worker can reduce sick leave absences by 27%⁷⁶.
- UN Water estimates that in developing countries, the return on investment in water and sanitation services is between US\$5 and US\$28 per dollar⁷⁷.
- OECD (Organisation for Economic Co-operation and Development) ran a simulation of a hypothetical air pollution abatement approach which would reduce

emissions of NO_x, SO₂ and black carbon by up to 25%. Not taking into account the reduction in morbidity, the benefits/costs ratio of policy measures adopted is, for the world, 1.5 by 2030 and 4.1 by 2050, with a benefits/costs ratio of 10 by 2050 in BRICS countries⁷⁸.

- Benefits from eliminating lead in gasoline on a global scale have been estimated at US\$2.45 trillion per year, or 4% of global GDP⁷⁹.
- A healthy and “sustainable” diet could reduce global greenhouse gas emissions (by the equivalent of ca. 0.3 to 0.6 PgC/yr compared to current trends), and protect biodiversity by greatly reducing requirements to

Figure 8 Human health impacts (in DALYS) per unit of electricity generated (1TWh), for Europe in 2010



Source: IRP 2015. Green Energy Choices. P 23

76 WHO (2014) “Protecting workers’ health” fact sheet 389

77 UN Water (2015) The World Water Development Report 2015, Water for a Sustainable World

78 OECD (2012) OECD Environmental Outlook to 2050, p298. (BRICS countries include Brazil, Russian, India, Indonesia, China, South Africa)

79 UNEP (2012) Global Chemicals Outlook

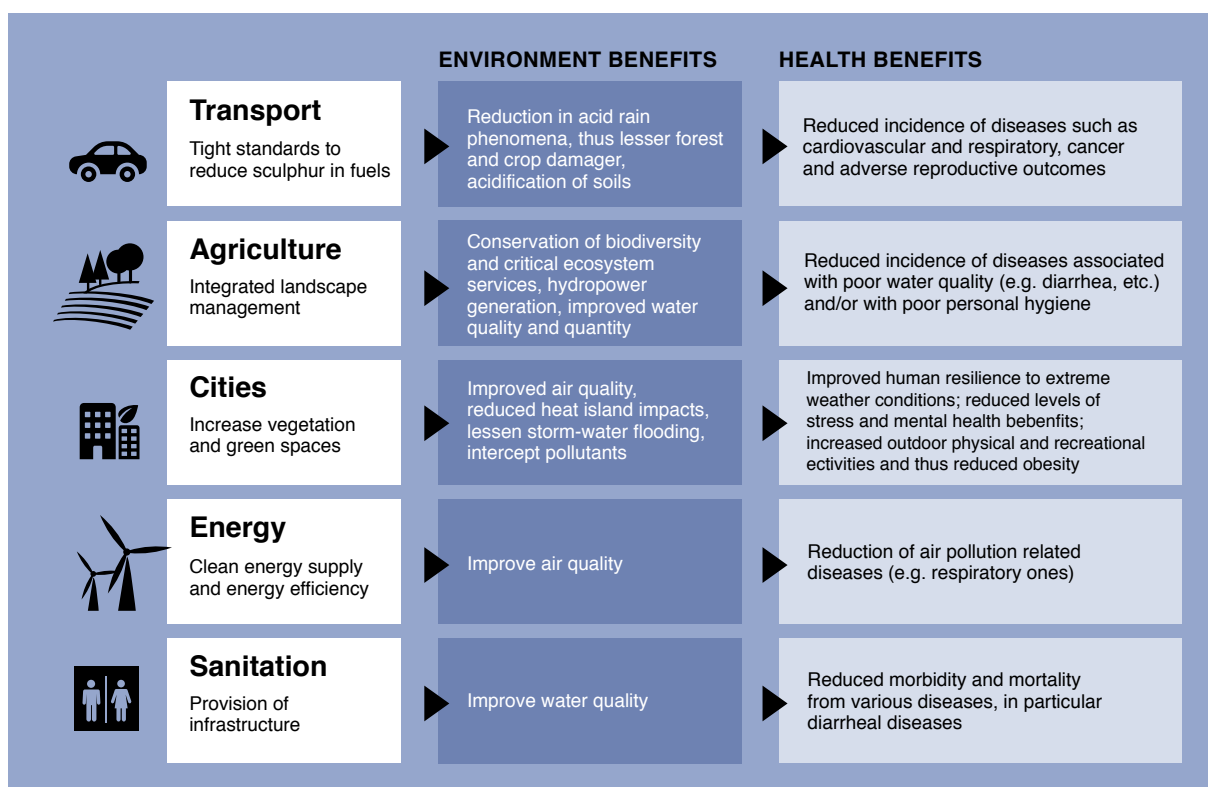
expand cropland area to feed a growing global population. Healthy diets are also generally associated with greatly reduced disease (diabetes, cancer and coronary disease) and mortality from all causes compared to diets rich in red meat.⁸⁰

- Mitigating climate change and increasing the climate resilience of key health functions⁸¹ would bring large health gains, and as such has been described as “the greatest health opportunity of the 21st century”⁸². For example, implementing proven, cost-effective measures to reduce emissions of short-lived climate pollutants such as black carbon and methane are expected not only to reduce global warming by 0.5C by the middle of the century, but also to save 2.4 million lives a year from reduced air pollution by 2030⁸³.

A comparative assessment of human health impacts across different energy choices indicates that countries will benefit from investing in more green energy choices (Figure 8).

The connection between green investments and public health is mutually reinforcing. On the one hand, green investment in major economic sectors reduces carbon emissions and pollution by enhancing energy and resource use efficiency, therefore improving human well-being and public health. Investing in the protection, conservation and restoration of ecosystems as ‘green infrastructure’ is also beneficial, as, for example, terrestrial and inland water ecosystems contribute to the regulation of the quantity, quality and supply of freshwater and of flood regulation. On the other hand, improved health reinforces econo-

Figure 9 Examples of multiple benefits of inclusive green policies



80 Tilman D, Clark M. (2014) “Global diets link environmental sustainability and human health” Nature 515:518

81 WHO (2015) WHO Operational Framework for building climate-resilient health systems, Geneva.

82 Watts N, et al. (2015) *ibid*.

83 Shindell D, et al. (2012) “Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security” Science. 335 (183-189).

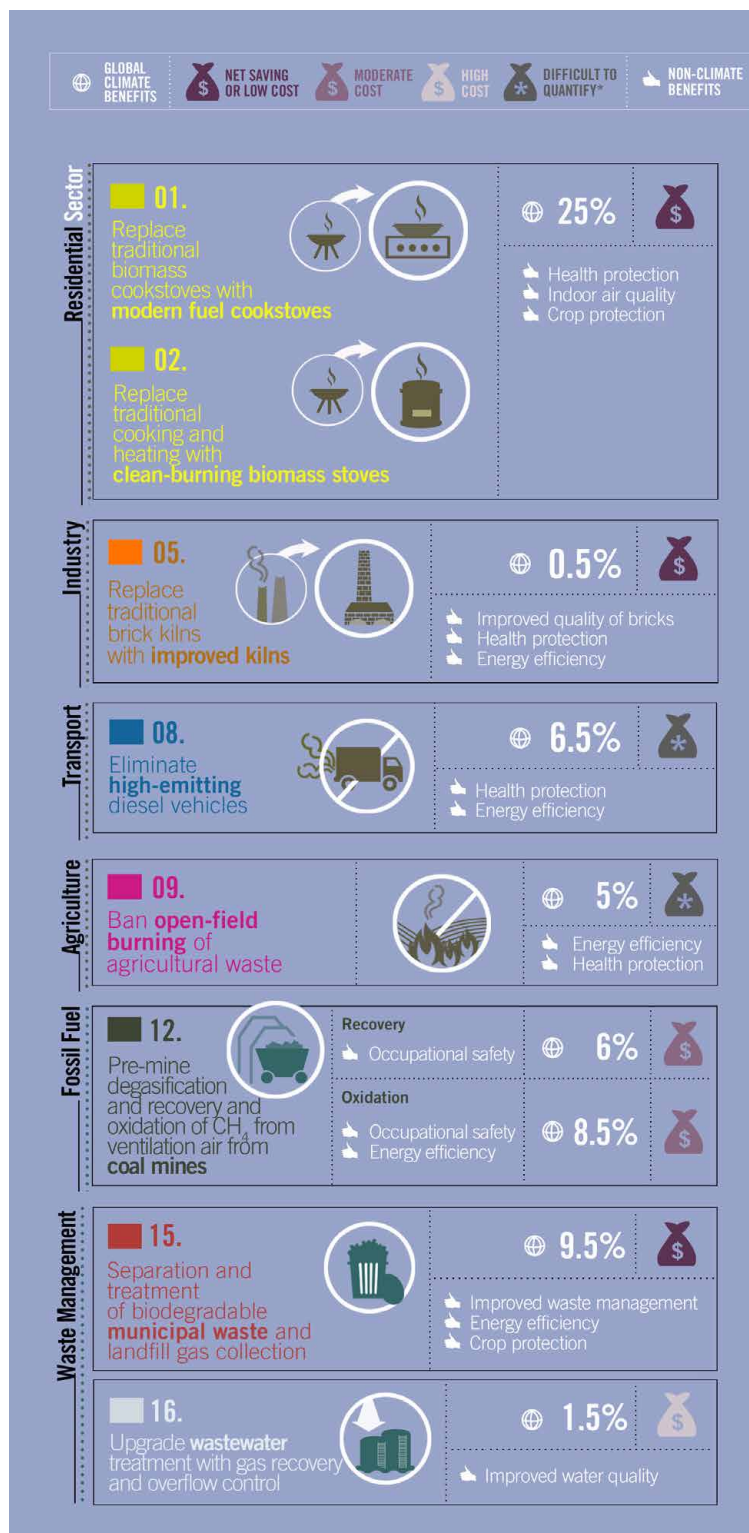
mic growth and acts as an engine for transitioning toward poverty eradication and sustainable development⁸⁴.

Investments targeted at sustainable, climate change-resilient water, sewage, and solid waste management and facilities can generate important health co-benefits in terms of sanitation by decreasing risks of exposure to infectious agents and water-borne disease for local communities, relieving the burden on public health and increasing labour productivity.

The benefits of investments in green economy include a significant reduction in the incidence of malnutrition, cardiovascular and chronic respiratory diseases, cancer, vector and waterborne infectious diseases, and lifestyle diseases such as obesity and diabetes⁸⁵. Figure 9 highlights examples of multiple benefits of inclusive green policies, while Figure 10 provides examples of action on Short-Lived Climate Pollutants (SLCPs).

Figure 10
 Cost of control measures and multiple benefits of some action on short lived climate pollutants

Half of the emission reductions of both black carbon and methane could be achieved at net cost savings or low costs over the lifetime of the measures, taking into account climate benefits only. If all benefits are considered, all control measures are cost effective



Source: CCAC

84 UNEP-WHO (2011). Health Co-Benefits of Green Policies in the Built Environment. United Nations Environment Programme & World Health Organization.

85 UNEP (2015) Uncovering Pathways towards an inclusive green economy. A summary for leaders (http://www.unep.org/greeneconomy/Portals/88/documents/ger/IGE%20NARRATIVE%20SUMMARY_Web.pdf)

Framework of Actions for a Healthy Environment and Healthy People

Improving human health and well-being through integrated environmental sustainability (protection, conservation, restoration) and policies provides a unique opportunity for meeting the goals and targets set out in the 2030 Agenda for Sustainable Development at both the national and global level.

Based on the evidence of the linkages between poor environmental quality and health, this Report identifies the following as priority problem areas, among others, for urgent policy attention:

- 1) **Household (indoor) and ambient (outdoor) air pollution**, which currently cause mortality and morbidity and reduced quality of life within countries and across borders;
- 2) **Unsafe water, inadequate sanitation or insufficient hygiene**, which cause mortality, morbidity and lost economic productivity;
- 3) **Hazardous chemicals and toxic waste**, which cause deaths and mental morbidity;
- 4) **Nutritionally poor diet composition and quality**, as well as increased physical inactivity, which has increased the growth of non-communicable diseases throughout the world;
- 5) **Degraded ecosystems and stresses to the Earth's natural systems**, which reduce ecosystem services that support human health, worsen local pollution, enhance exposure to natural disasters and at times give rise to disease outbreaks.

Climate change is exacerbating the scale and intensity of these environmentally related health risks.

A framework of four integrated actions and strategies is recommended to address the nexus of environment and health (Figure 11):

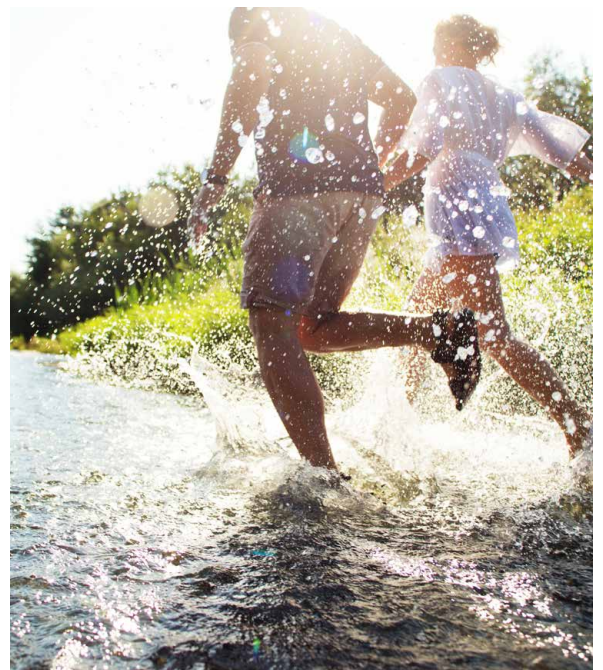
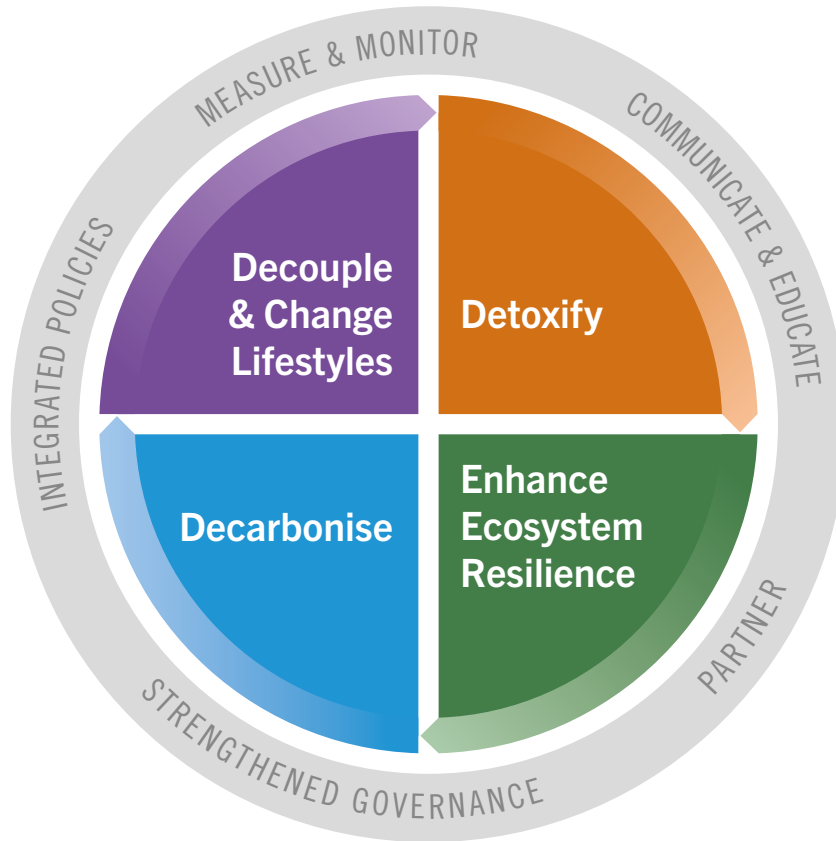


Figure 11 Framework of actions and strategies



DETOXIFY: Remove harmful substances from and/or mitigate their impact on the environment in which people live and work. This will, for example, address air pollution, through reducing black carbon emitted by household and non-household sources and other pollutants, and ensure that emission concentrations do not exceed WHO recommended targets for PM2.5 and Carbon Monoxide (CO)⁸⁶. It will focus on the sound management of chemicals and waste. This will include: adopting a life-cycle approach to chemicals and waste management; treating waste water; phasing out of hazardous chemicals or endocrine disrupting chemicals, promoting the use of safe alternatives to hazardous chemicals “green chemistry”, and depolluting contaminated sites.

DECARBONIZE: Reduce the use of carbon fuels and thereby emissions of carbon dioxide (CO₂) through substitution of non-carbon energy. Over their life-cycle, the pollution-related human health and environmental impacts of solar, wind and hydropower are a factor of 3 to 10 times lower than fossil-fuel power plants⁸⁷. Investing in green energy at household level will accrue other benefits, including more time for income-generating activities, reduced health risks from carrying heavy loads of firewood over long distances, and more leisure time available for women, among others. The Nationally Determined Contributions (NDCs) committed to under the Paris agreement on Climate Change can be important vehicles for decarbonization, and consequent health and well-being improvements.

86 These guidelines have been accepted as the definition of clean fuel and technologies for SDG 7.1.2 indicator. (WHO (2014) Indoor Air Quality Guidelines: Household Fuel Combustion, Geneva).

87 UNEP (2015) Green Energy Choices: the benefits, risks, and trade-offs of low-carbon technologies for electricity production. Report of the International Resource Panel



DECOUPLE RESOURCE USE AND ENVIRONMENTAL IMPACTS AND CHANGE LIFESTYLES:

Use fewer resources per unit of economic output produced and reduce the environmental impacts of production and consumption activities⁸⁷. Important health benefits can be gained from decoupling opportunities in the food sector through reduction of food loss and waste, shifts in consumption from animal to plant-based products⁸⁹, and improved diet composition and quality. Linking responsible consumer behaviour and demand for products to its land-use implications can help address environment and health linkages. Youth engagement, awareness raising and education need to be prioritized to achieve this. Decoupling pressure on water resources from economic growth, from a life-cycle perspective, is key to enhancing water availability. This also mitigates greenhouse gas emissions, as water use and energy, especially in agriculture, are inextricably linked.

ENHANCE ECOSYSTEM RESILIENCE:

Build capacity of the environment, economies and societies to anticipate, respond to and recover from disturbances and shocks through: protecting the earth’s natural ecosystems, promoting agro-ecosystem restoration and sustainable farming systems; strengthening ecosystem restoration, especially of wetlands, dryland vegetation, coastal zones and water sheds, including through reforestation and assisted natural regeneration; reducing livestock and logging pressures to increase resilience and mitigate extreme weather conditions of storms, drought and floods. Sustainable land and forest management, along with conservation and restoration, will protect and enhance biodiversity and ecosystem services. This will lead to improved absorption of rainwater into the soil, increased water storage and availability, more biomass, and greater food security, thus reducing malnutrition. These restorative activities will not only ensure food security, but also a healthy environment to nurture cultural, social and recreational activities important to our mental health, and economic growth for local populations and businesses.



87 UNEP (2015) Green Energy Choices: the benefits, risks, and trade-offs of low-carbon technologies for electricity production. Report of the International Resource Panel (http://www.unep.org/resourcepanel/Portals/50244/publications/Summary_for_Policy_Makers_GHG_1.pdf)
 88 UNEP (2011) Decoupling Natural Resource Use and Environmental Impacts from Economic Growth. A Report of the Working group on decoupling to the International Resource Panel. (http://www.unep.org/resourcepanel/decoupling/files/pdf/decoupling_report_english.pdf)
 89 Tilman D., Clark M. (2014) “Global Diets link Environmental Sustainability and Human Health”, Nature, 515, 518-522.

The five economy-wide strategies proposed to support these actions are:

STRENGTHENED ENVIRONMENTAL GOVERNANCE AROUND THE ENVIRONMENT-HEALTH NEXUS AT THE GLOBAL, REGIONAL AND NATIONAL LEVEL.

The link between environment and health is recognized in a number of UN human rights treaties⁹⁰. In addition, the right to a clean⁹¹ and healthy environment has been expressly included in or interpreted as a fundamental component of many regional human rights agreements and more than 100 national constitutions, resulting in greater participation in environmental decision-making and accountability. The Paris Agreement on climate change has a reference to human rights including the right to health in the Preamble.

At the global level, the WHO **International Health Regulations (IHR)**, entered into force in 2007 and are legally binding on the 194 Member States of WHO. Through the guidelines on air quality and drinking-water quality, WHO provides the scientific basis for regulation and standard setting to address key environmental-health issues. In May 2015, the World Health Assembly passed a resolution on mitigating the health effects of air pollution. The resolution requests the WHO Secretariat to strengthen its technical capacities to support Member States in taking action on air pollution⁹², a resolution complementary to the UNEA June 2014 Resolution on Air Quality.⁹³ These agencies are now working together to enhance technical and policy capacity of member states to address air pollution.

A number of **multilateral environmental agreements (MEAs) also contribute to both environmental and human health and well-being**⁹⁴. Hazardous chemicals are addressed through synergies among the Basel, Rotterdam and Stockholm conventions, but stronger links to the WHO IHR are needed. In addition to legally binding global instruments, the Strategic Approach to International Chemicals Management (SAICM) promotes chemical safety around the world. **Life-cycle management of chemicals**

is crucial to avoid significant and increasingly complex risks to human health and the environment. The world's most recent MEA, the Minamata Convention on Mercury, will offer significant opportunities for the protection of human health and environment once it enters into force⁹⁵. The Paris Agreement on Climate Change, adopted in December 2015, strengthens the ongoing global response and collective action to address the threat of climate change in the context of sustainable development and poverty alleviation. The focus on improving human health, through decarbonization and detoxification, will also help to deliver the climate targets by reducing emissions of black- and short-lived air pollutants.

The objective of sustaining a healthy planet to deliver life-sustaining benefits essential for all people, is embedded in both the vision and mission of the Strategic Plan for Biodiversity 2011-2020 adopted under the Convention on Biological Diversity and other biodiversity related conventions. Achievement of the associated Aichi Biodiversity Targets will address many of the drivers of ill-health and biodiversity loss. For example Aichi Biodiversity Target 5 (By 2020 to half the rate of habitat loss and degradation) will contribute not only to biodiversity conservation but also to reducing the risk of infectious diseases, and to protecting ecosystems that provide vital services. Target 14, addresses ecosystems and ecosystem services that contribute to human health, livelihoods and well-being, with an explicit focus on the needs of women, indigenous peoples and local communities and the poor and vulnerable – groups that tend to be particularly and directly dependent on natural resources.

At the regional level, **regional conventions contribute to more effective legislation and institutional capacity on environment and health and direct indisputable major improvements**. The reflection of the UN Economic Commission for Europe's (UNECE) Convention on Long-Range Transboundary Air Pollution (CLRTAP) in national legislation has led to large reductions in sulphur and nitrogen emissions across Europe, and can be replicated in other regions with similar successes⁹⁶. Examples of

90 The link between environment and health is recognised, for example, in the Universal declaration of Human Rights, International Covenant on Civil and Political Rights, International Covenant on Economic, Social and Cultural Rights, and the Convention on the Rights of the Child.

91 As part of the SDG Interface Ontology (UNEP Live SDG Portal) the definition of clean environment is given by the following: <http://purl.bioontology.org/ontology/RCD/Ua0ms>

92 WHO (2015) "Health and the Environment: Addressing the health impact of air pollution", WHA Resolution (http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_ACONF2Rev1-en.pdf)

93 http://www.unep.org/unea/UNEA_Resolutions.asp

94 WHO/CBD (2015) *ibid*.

95 Giang A. and Selin N.E. (2016) Benefits of mercury controls for the United

regional policy action include the WHO European Ministerial Conference on Environment and Health meets regularly to determine common policy actions and the Forum of Ministers of Environment of Latin America and the Caribbean, which established the Regional Intergovernmental Network on Atmospheric Pollution in 2008, working on the implementation of the Regional Plan of Action which provides a guide for the development (and eventual harmonization) of national policies to reduce air pollution. Regional sanitation conferences such as Africasan have spurred political commitments, such as establishing public sector budget allocations for sanitation with the aim of spending 0.5% of GDP on sanitation⁹⁷.

At **the national level**, it is crucial for countries to develop and strengthen the implementation of national environmental legislation linking environmental sustainability (protection, conservation, restoration) to improving health, including the required judicial and binding legal framework for actual implementation and enforcement. There is a need to consider health-environment linkages in both environment and health impact assessments and in strategic assessments. There is also a need to strengthen national monitoring capacities and data collection, including integrated surveillance capacities and early warning systems, that enable health systems to anticipate, prepare for and respond to public health threats resulting from ecosystem degradation. Partnerships on specific legislation and related measures where significant impacts can be attained are a successful way to accelerate measures; this can be seen in the successes of the Partnership for Clean Fuels and Vehicles, which has facilitated the almost complete phasing out of lead in petrol (gasoline) in developed and transition countries⁹⁸. Governments and stakeholders have partnered in the Global Alliance to Eliminate Lead in Paint to introduce legal limits on lead in paint by 2020⁹⁹. So far 59 countries have such legislation, including recent new laws and regulations in Nepal, the Philippines and Sri Lanka.

EVIDENCE-BASED INTEGRATED POLICIES TO INCENTIVIZE THE ABOVE ACTIONS.

The evidence linking environmental sustainability with health gains provides a strong foundation for designing, adopting and implementing integrated policies on the national scale. (Figure 12). Evidence based policies have the promise of substantial benefits to relatively small costs. There can however be a considerable lag between science and policy action, even when a sufficient degree of certainty in light of the risks has been reached¹⁰¹.

Integrated environmental and health policies require institutional arrangements whereby all sectors take responsibility for reducing health inequities, through intersectoral cooperation mechanisms and actions to integrate effectively environment and health linkages and risks in financial and development choices¹⁰². The implementation of the Libreville Declaration on Environment and Health, adopted by African countries, demonstrates that the basis of integrated policy-making is already into place in some countries and regions. Environment and health forums in other regions also provide solid platforms to stimulate and accelerate change and need to be supported further.

Market and financial instruments and public regulation are also vital for incentivizing improved environmental and health policies. Taxes and civil penalties for polluters, combined with subsidies reform, can promote cleaner investments, along with energy price reforms¹⁰³. Interventions that can greatly improve energy efficiency of water use include correct pricing of water, improved technologies for storage and treatment, and appropriate choice of crops. Governments can blend public sector financial instruments to leverage private investments in clean and green development choices by sharing risks

96 See Long-term strategy for the Convention on Long-range Transboundary Air Pollution and Action Plan for its implementation, ECE/EB.AIR/106/Add.1

97 See <http://www.africasan.com/>

98 See <http://www.unep.org/transport/new/pcf/v/> . Lead additives are used in only three remaining countries.

99 See. <http://www.unep.org/chemicalsandwaste/hazardoussubstances/LeadCadmium/PrioritiesforAction/LeadPaints/tabid/6176/Default.aspx>

100 deleted

101 United Nations (2015) Global Sustainable Development Report

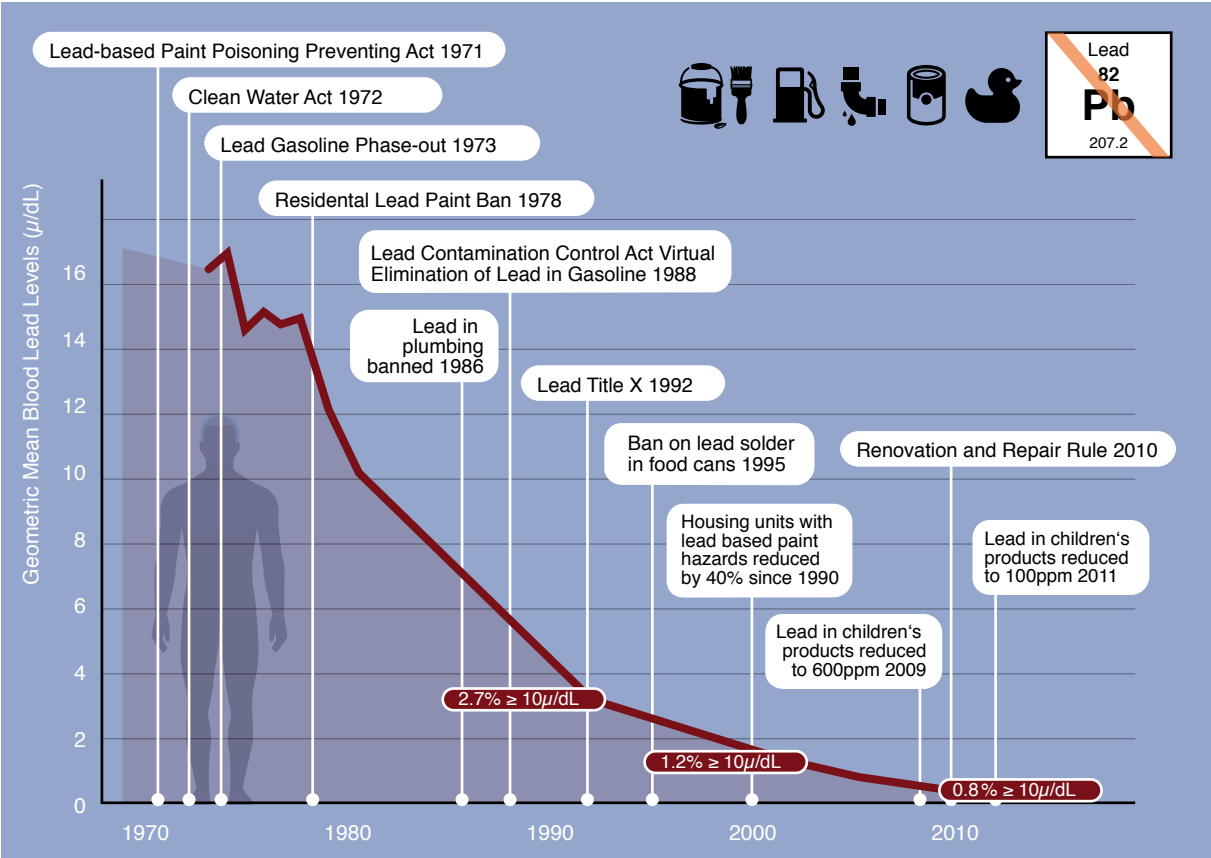
102 For example, promoting 'Health in all Policies' (HiAP), develops effective policies with clear and measurable outcomes, that build accountability for the determinants of health and related health inequities.

103 Energy subsidies are estimated to represent \$4.9 trillion (6.5% of global GDP), with approximately half representing expenditures treating the victims of air pollution and the income lost because of ill health and premature death. Coady D. and al. (2015) "How Large are Global Energy Subsidies?" International Monetary Fund, Working Paper n°15/105

and reducing costs. Financing mechanisms are required to mobilize private capital and philanthropy to address global and local environmental and health challenges¹⁰⁴. More healthy living can be addressed by promoting more-balanced diets to reduce obesity, and support local markets and organic and sustainable agriculture. Finally, the implementation of these integrated national policies can often be made through investments in green infrastructure and green technology, generating jobs and livelihoods.



Figure 12 Preventing Lead poisoning through Environmental Legislation and Policies



Source: US Centers for Disease Control and Prevention

104 See for example the Zero gap portfolio of Rockefeller Foundation at <https://www.rockefellerfoundation.org/our-work/initiatives/innovative-finance/>

PARTNERSHIPS

Partnering on research and technology to address environment and health linkages and communications and education to induce social and behavioural change can be transformative, help increase knowledge about environment and health linkages and provide practical solutions. Bringing together environmental and health professionals into decision-making processes also serves to improve communication with citizens and communities and decision-makers¹⁰⁵. Businesses and local communities can also build meaningful partnerships to address linkages, in particular for prevention and preparedness to natural and industrial disasters. The engagement of financial institutions can help integrate environmental risks into investment decision-making and help finance greener choice making.

Collaborative transdisciplinary research on environment and health is key to improved environment and public health outcomes¹⁰⁶, as evidenced by ecohealth research practice¹⁰⁷, several recent reports^{108 109}, programmes^{110 111} and the design of more effective responses to disasters.

The Sanitation and Water for All¹¹² global partnership has regularly brought together Ministers of Finance from developing countries and Ministers of Development Cooperation from developed countries. A wide range of collaborative initiatives have been created to support the development and diffusion of environmentally sound energy technologies, such as the Global Solar Alliance with ca. 120 countries, the SE4All initiative supporting the widespread adoption of energy efficiency through its Global Energy Efficiency Accelerator Platform, the Climate & Clean Air Coalition (CCAC) and the Global Partnership on Waste Management and the Global Wastewater Initiative.

The Technology Facilitation Mechanism, established in 2015 to support the SDGs, can foster greater support for addressing the nexus between environmental quality and health.



105 For example, the Health and Environment Alliance (HEAL) is a not-for-profit organization addressing how the environment affects health in the European Union (EU). Composed of more than 70 health and environment groups, HEAL brings expertise and evidence to different decision-making processes to strengthen European environment policies to improve people's health.

106 This research needs to focus on individuals but also on communities to understand event exposure levels, pre-existing burden of disease, status of immune system, pregnancy and nutritional status, existing psychological status, gender, social status, age, initial endowments and resources, individual/communal/familial/social security systems, as well as health systems and support services and ICT. 107 Charron D. (ed) (2012) Ecohealth Research in practice. IDRC (<http://idl-bnc.idrc.ca/dspace/bitstream/10625/47809/1/IDL-47809.pdf>)

108 Whitmee S. et al (2015) Safeguarding human health in the Anthropocene epoch: report of the Rockefeller Foundation – Lancet Commission on planetary health, The Lancet, vol 386, issue 1007, 1973-2028.

109 WHO/CBD (2015) *ibid*.

110 The Wellcome Trust “Our Planet, Our Health” funding opportunities” aims at supporting transdisciplinary programmes of research that investigate novel aspects of – and build evidence for – how complex changes in our environment affect our health. (<http://www.wellcome.ac.uk/Funding/Strategic-funding/Our-planet-our-health/Funding-opportunities/index.htm>)

111 See HELI, a WHO and UNEP partnership of environment and health. <http://www.who.int/heli/en/>

112 See <http://sanitationandwaterforall.org/>

COMMUNICATION AND EDUCATION

Environmental and health education and communication is key to social and behavioural change and to incentivize more sustainable lifestyles. Communication and education strategies need to be put into place in order to equip people of all ages and at all levels, including schools, graduate studies, professional associations, industry, etc, with the opportunity to acquire the knowledge, skills, values and attitudes that empower them to contribute to improving the quality of the environment and of their life. This needs to be at various levels. Scientific evidence needs to be transformed into common knowledge and accessible tools, and the message has to target actors at different levels of interest, time horizons involved and ability to act or change behaviour.

More data platforms on environmental pollutants can be useful for informing and empowering citizens, as well as policy planning. Better informed citizens can better participate¹¹³ and contribute to the implementation of environment-health public policies, and adjust their own behaviour to protect themselves from risks, enjoy and contribute to a better quality of life.

Broad public awareness campaign, such as on air quality in big cities, can help influence behavioural change and contribute to making lifestyles aspirations and public investments to promote a cleaner environment mutually supportive. In other areas, such as food waste, the combination of policies, commitments from supply chain actors and citizens' awareness and education demonstrate encouraging results in some countries¹¹⁴.

Citizens need to be informed about the potential risks of release of pollutants into the air they breathe, the water they drink and the soil their house is built on. Communities need to be informed about the related safety measures that need to be adopted. Companies also have

the responsibility to inform their employees on the risks involved in some of the products they may be handling, on necessary safety measures and provide adapted equipment and training for them to be implemented. Sharing information, using language that makes it accessible, and in ways that reach the most vulnerable is crucial; the most vulnerable groups are known to suffer most from lack of information, evidenced by the number of poisoning due to mismanagement of pesticides in poor rural communities¹¹⁵ or by the vast health impact of unsafe e-waste dismantling and recycling.

Box 3 – VOICES OF YOUTH DIGITAL MAPPING

Through the “Voices of Youth Maps” (digital mapping) initiative by UNICEF, young people conduct digital mapping on climate change and environmental challenges locally, and use the map and complementary child and youth-produced media for local advocacy with government, business and community. The global map now has over 800 reports from hundreds of young people who have been contributing in 2014.



Source: UNICEF

113 Principle 10 of the Rio declaration sets out three fundamental rights: access to information, access to public participation and access to justice, as key pillars of sound environmental governance. These “access rights” have emerged to be very important in promoting transparent, inclusive and accountable environmental governance.

114 In the UK, avoidable household food waste has been cut by 21% between 2007 and 2012, saving almost £13 billion over five years to 2012 (WRAP (2013)

115 Through direct and indirect exposure, an estimated 20,000 unintentional deaths occur every year as a result of pesticide poisoning (WHO (2003) The World Health Report 2003 – shaping the future, Geneva.)

MEASURING, MONITORING AND REPORTING USING BOTH HEALTH AND ENVIRONMENTAL INDICATORS.

Mechanisms that stimulate “citizen science” – including through the collection of information on air pollutants, water quality, waste, etc. – and help feed into global platforms are increasingly helping improve access to knowledge¹¹⁶. The new global indicator framework for monitoring the SDGs has been designed to help national institutions and citizens alike identify trends and monitor progress towards meeting the vision of the 2030 agenda¹¹⁷.

Critical to the success of reducing exposure to risk in both human populations and ecosystems are policies that

- i) strengthen community-based early warning systems, tailored to local conditions;
- ii) support greater engagement of citizens including youth, in environment and health awareness programmes, through purpose-designed citizen science programmes;
- iii) enable the adoption of legislation enshrining the idea of precaution, ethical standards, sustainable development and ecosystem and health risk assessment of new products and technologies;
- iv) improve national statistical capacities to provide disaggregated data on demographic patterns of exposures to environmental pollutants and climate-related hazards;
- v) support programmes on early warning science of environmental related extreme events, including capacity building of young researchers; and
- vi) include the regular assessment of policy coherence across the environment and health domains.

Box 4 – GLOBAL PLATFORM ON AIR QUALITY AND HEALTH

The WHO-led Global Platform on Air Quality and Health, established in January 2014, is a broad collaborative effort that aims to ensure access to and quality of information on human exposure to air pollution in the indoor and outdoor environment. It brings together a wide range of international institutions and experts engaged in air quality monitoring including data from satellite remote-sensing, ground-level monitoring systems, air quality transport models, emission inventories, and household surveys. Partners include UN agencies (i.e. WMO, UNEP, WHO, UNSD, UNECE), the World Bank and national institutions like the US Environmental Protection Agency, National Aeronautics and Space Administration (NASA), the Japan Aerospace Exploration Agency (JAXA), as well as top research institutions on air pollution. The Platform members meet annually to identify challenges on data quality and access, and work in task forces to tackle those challenges. A web interface is being developed for this Platform to ensure wide availability to relevant information on air quality and health and access to relevant international databases. (http://www.who.int/phe/health_topics/outdoorair/en/)

Source: WHO

116 www.uneplive.org

117 United Nations Statistical Commission (2016) 47th Meeting (<http://unstats.un.org/unsd/statcom/47th-session/documents/>)



Conclusion and Recommendations

Human health and well-being are crosscutting themes in the 2030 Agenda for Sustainable Development. There is substantial evidence that environmental degradation has a direct bearing on human health through mortality, morbidity and well-being, including mental health. Current global environmental trends risk reversing decades of progress in health and development through the combined effects of climate, biodiversity loss and the degradation of the earth's natural systems that support human health. Actions at the junctures of health and environment linkages are critical to meeting this challenge. Moving from a reactive to a proactive policy approach, will enable risks that could otherwise develop into full-scale environment and health emergencies to be mitigated, limiting and even preventing crises that could cripple a country's economic, political and physical infrastructure.

The degradation of our environment has been estimated to be responsible for at least a quarter of the global total burden of disease but these estimates do not take into the effects of emerging global environmental changes. This report highlights critical areas of improvement including reducing indoor and outdoor air pollution, improving water safety further, reducing exposure to hazardous chemicals, addressing lifestyle-related health threats and improving ecosystem resilience to floods and droughts. It also offers proven successes of policies, implementation and tools. These are essential not only for improving health, but for human well-being, mental health and ultimately the grounds for the happiness of children and families across the world.

Protecting the environment and investing in the protection, conservation and restoration of biodiversity and ecosystems can provide the platform and tools to improve human health and well-being, and is a key to successfully meeting the Sustainable Development Goals (SDGs) and targets.

In conclusion, addressing the nexus between environment and human health through delivering on environmental sustainability can provide a common platform for meeting many of the Sustainable Development Goals. Through multiplier effects that can accelerate and sustain progress across multiple Sustainable Development Goals (SDGs), investing in environmental sustainability can serve as an insurance policy for health and human well-being. It is important on efficiency grounds, but also for distributive justice, and to address the moral and legal obligations of states.

RECOMMENDATIONS

The Report's findings provide a strong basis for adopting an integrated approach for improving human health and well-being through environmental sustainability. Based on the Report and the framework of action and strategies, the following is recommended:

1. Recognize that environmental sustainability through protection, conservation and restoration has a direct bearing on human health and well-being.
2. Recognize that addressing the nexus between environment and health can provide a common platform for meeting many of the SDGs.
3. Recognize that investing in environmental sustainability can serve as an insurance policy for health and human well-being.
4. Recognize that addressing the environment health nexus is important on efficiency grounds, but also for distributive justice, and to address the moral and legal obligations of states.
5. Recognize that integrated actions and strategies for improving human health and well-being are central tools and a unique opportunity for meeting the SDGs and related targets.
6. Recognize that international and national cooperation on environment and health can create important synergies and contribute well to delivering on the 2030 Agenda for Sustainable Development.
7. Recognize that by moving from a reactive to a proactive policy approach, many environment and health emergencies can be avoided or mitigated, pre-empting crises that otherwise might cripple a country's economic, political and physical infrastructure.
8. Emphasize the following lines of action in national plans: detoxify the environment; decarbonize the economy; decouple economic growth from water use, food waste, energy use; change unhealthy lifestyles; enhance ecosystem resilience.
9. Support the lines of actions with economy-wide strategies on strengthened environmental governance; integrated evidence based policies; partnerships and platforms on health-environment research, innovations, technologies, innovative financing, and practices; communication and education interventions; and measurement and monitoring frameworks.
10. Finally, call upon governments and development and financial partners to scale up investments in platforms, initiatives and programmes that address the environment and health nexus to spearhead the achievement of SDGs.