

**HUMANITARIAN &
DEVELOPMENT
PROGRAMME**

HEALTH WILL NOT TURN GREEN

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« GLOBAL HEALTH » THINK TANK



Climate change is all over the media and at the forefront of our minds but what do we know about the relationship between climate change and health? Health is oft-forgotten in discussions on climate change, but unlike planet earth which adapts to change, our lives and continued existence is on the line. Today, our resilience is determined by our understanding of the determinants and impacts of climate change on humans.

In Europe, back in the XVIII Century, people thought that a new era was coming -- Machines decreased arduous working time. But looking at the Industrial Revolution more closely, it is easy to see that the establishment of a labour force was not the only lasting impact of this period. The thick smog hanging over the dark and narrow lanes in densely populated English worker communities contributed to an increase in the number of cases of rickets. From the point of view of the Global North, the Industrial Revolution is a thing of the past. However, for many in the developing world it is a reality of everyday life due to their own path towards development and growth or due to the relocation and arrival of Western industries. This reality affects us all, and makes us question the progress of global health over the last decades.

AFFECTING OUR ENVIRONMENT

Natural disasters are increasing in frequency and getting more impactful. Even though the international law refuses to give legitimacy to the term "environmental refugees", they are each year more numerous, reaching an estimate of more than 26 million people per year between 2008 and 2014. 'Refugees' refers to those looking for shelter or protection outside their national border. However, those affected by climate change do not always cross borders. 211 million people all over the world were impacted by hydrometeorological events in 2014 (95% of them lived in developing countries). Climate change has an impact on the social and environmental health determinants: fresh air, drinkable water, nutritional security, household security all of which may lead to an additional 250 000 deaths per year between 2030 and 2050, due to malnutrition, malaria, diarrhea and heat stress...

Factors such as the area of habitation, socio-cultural, gender, and age determinants all create an unequal resilience. Those most at risk are women and children who are 14 times more likely to die during natural disasters than men. Older people also pay a heavy price – in 2005 during Hurricane Katrina the elderly represented over 60% of deaths.

However, climate change is not exclusive to developing countries, neither is it a lone traveler. It is accompanied by galloping urbanization, forced displacement, and a desire shared by all of a "better future". However, this pushes us inexorably in the wrong direction. Of course, we all know about the polar bear who searches for floating ice, and the slow death of the coral reef... but heat waves, repeated flooding, secular droughts, dispersal of toxic particles, migration of diseases, all compete and sometimes combine to undermine human health.

AFFECTING OUR BODIES

Floods, hurricanes and landslides lead to the mixing of clean and soiled water and increases the prevalence of waterborne diseases, while reducing access to drinking water and undermining a health system that is sometimes already failing. There are more than 4 billion cases of diarrhea around the world every year, including 2 million deaths that could easily be cured with a simple sachet of oral rehydration. On the other hand, these extreme events highlight the great vulnerability of populations, and will force us to reconsider our way of thinking about mental health over the coming years. Much less visible the psychological consequences of a disaster can be just as devastating. In the immediate aftermath of an event the psychological destabilization and shock combined with the more long term effects such as post-traumatic stress disorder (PTSD) result in the consumption of psychoactive substances more longer term rehabilitation difficulties.

Heat waves causing drought leads to crop failures, fueling tensions around limited resources, and becoming a major cause of mal- and under- nutrition. Malnutrition is responsible for 45% of the causes of death worldwide for children under 5 years old.

Due to human physiological limitations, the countries most affected by heat waves are likely to see their workforce weaken, their daily working hours decrease, ultimately hampering economic development. Indeed, the human body has the ability to adapt to extreme temperatures through perspiration, provided that the condensation temperature (a combination of temperature and humidity), remains below the critical threshold of 95 degrees Fahrenheit. This is not the case during heat waves, like the last ones in Russia, Chicago or Europe. Let us recall that 70 000 additional deaths were caused by the heat wave of summer 2003 in Europe. A recent study by MIT goes further, discussing the possibility for the Gulf countries to become an "uninhabitable area" by the end of the century.

Bringing heat, the sun's rays are beneficial in small doses. It promotes the production of vitamin D in the body, which is essential to our growth (as seen in the epidemic of rickets in industrial centers in the nineteenth century) and to our health. However an excess of these rays causes skin cancer and optical damage. At different latitudes, humans have evolved to respond to this challenge. A dark skin protects from too much sun in the tropics, a light skin capture the slightest rays of sunshine closest to the poles. Today, the number of cases of malignant melanoma has doubled every 8 years for the last 40 years. What could be the cause? Most probably a changing society's relation to the sun and a hole in the ozone layer that alters the anti-UVB shield of the stratosphere, not to mention the extreme mobility of the populations in our days that cause vitamin deficiencies for some and skin cancers for others. Living in the tropics for weeks, months or years at a time does not mean it no longer needs protecting from the sun.

Mixed with heat is air pollution. In recent years there has been a significant increase in cardio-respiratory problems. An inability to breathe is one of the most painful sensations you can experience. The lungs, the largest organ in the body, is the only internal organ that is permanently exposed to the external environment. Today, bronchitis, pneumonia, and asthma are increasingly present in urban and industrial centers as well as in rural areas where 3 billion people (41% of the world's population) still use solid fuels for heating and cooking. Pneumonia alone accounts for 15% worldwide of under-5 deaths.

Pollution is then also mixed with pollen. The geographical distribution and seasonality of pollen are affected by climate change – present for longer, more impactful and more precocious. On the other hand, the amount of pollen present in the air is constantly increasing due changing land use and the resulting level of atmospheric CO2 concentration. Chemical atmospheric pollutants and anthropogenic aerosols (particles suspended in the atmosphere following human activity) can modify the impact of allergen pollen by fluctuating the quantity and characteristics of allergens and simultaneously increasing human sensitivity. Asthma today affects 235 million people worldwide, costing Europe 17.7 billion € per year, including a loss of productivity of 10 billion €.

Like pollen, the pathologies migrate and announce the arrival of parasitic disease (bilharzioses, malaria ...) and bacteria (Meningitis) in regions previously exempt from these issues. Indeed, climate change modifies the geographical and seasonal distribution of certain diseases. It is the determinants of infectious and respiratory diseases that, impacted by climate change, have public health repercussions. Temperature, moisture, dust, rain, all have a strong impact on the quality of agricultural crops, such as the reproductive cycle of mosquitoes: a major contributor to diseases such as malaria and dengue.

Far from being unidirectional, this "new" climate / health relationship is also influenced by many other vulnerability factors such as physiology, individual behavior, socio-economic conditions, coverage and unequal effectiveness to health centers. Hospitals and medical centers are themselves impacted by hydrometeorological events are often no longer able to respond to a massive influx of patients.

Seeking guidance from above, mankind often looks to the heavens. We still do the same today but are seeing a thin atmosphere that magnifies our mistakes and imprisons us in a trap of our own making. Could climate change one day become the 'other' that unites humanity?

ONE PLANET -- 7 421 631 078 HUMANS -- SHAPING A COMMON FUTURE?

Climate change today will require us to think in terms of risk reduction, resilience, adaptation and mitigation. Mitigation refers to strategies to reduce the causes of global warming, such as reducing greenhouse gas emissions. To think that mitigation is the work of political and industrial actors, is partly true. The recent "COP 21" meeting held in Paris in December 2015 had the ambition to contain the rise of the average temperature of the planet to 2 ° C as compared to the pre-industrial era, whereas the projections foresee "A worst case scenario" of 6 to 8 ° C for the generation of our grandchildren by 2100. "The Paris agreement" opened for signature last April at the UN was consolidated by the "second World Conference on Health and Climate "in Paris in early July 2016. This agreement gives a prominent place to the "right to health "by implementing plans to protect human health from the impacts of climate change and commits countries to "finance a clean and resilient future". It should be noted that the ratification of the Paris Agreement by the European Union last month followed by Rwanda, brought the number of ratifications to 75. Thus, the Treaty of Paris became a binding agreement on the 4th of November, just a few days before the launch of the COP 22 in Marrakech, allowing the new conference to focus on its implementation.

A few months before the launch of COP 21, in 2014 in Japan these same governments, worried about the growing repercussions of these cascading disasters, adopted the Sendai framework for the next fifteen years. This is a new tool that allows to reduce disaster risks and deaths by focusing on improving the resilience of national health systems and infrastructure. It pushes for better coordination between health authorities and other stakeholders, as well as increased cooperation at the international level.

Yes, the premises of change are there. But is it reasonable to leave a subject as serious as our future in the hands of our industrialists and politicians? And above all, is it not illusory to believe that this will be enough? The speed of this change at the level of humanity forces us to rethink how we approach the problem. Our resilience lies in our ability to adapt. Humanity learned how to cross the oceans and the ice ages, to find innovative solutions, new tools, but especially to become audacious in its way of thinking ... From deciding to be sedentary farmers and domesticating animals that were traditionally hunted, to taming destructive fire into our best ally, to developing diplomacy rather than weapons, renewable energies rather than coal ... Even today, the solution lies in our ability to adapt, to re-read the world around us and to broaden our modes of reflection. We need to change our behavior. We need to come to the realization that our customs and beliefs of yesterday are now outdated. Today we must embrace tomorrow. Adapt, align, and make resilience reality.

Let's not wait for a solution to come from above or elsewhere. Let's move away from western-centric visions. The countries of the South, like Costa Rica which operates on clean energy at 98.2% set an example for the rest of the world. This country is ambitious in its goal to be the first carbon-neutral country by 2021. Bangladesh, a leading figure in the V20 (the 20 countries most vulnerable to climate change), created a trust fund in 2009 (the BCCT - Bangladesh Climate Change Trust) to finance 7000 anticyclonic shelters, replanting 144 million trees, 550 rain collection tanks. Resiliency starts at all levels -- from citizens to international organizations. Raising awareness could have "quick wins" such as: fireproof housing, sustainable transport, preemptive healthcare before flooding cycles, construction adaptation to floods, safe drinking water points, early warning systems and response plans coordinated regionally. Ministries which are able to recognize malaria (and other plagues) in localities now and in the future should also be able to encourage the use of public transport, cycling and limiting the use of fossil fuels both at the industrial level and in the homes.

For all this, we need quality health personnel, safe health centers ... but above all, we need the populations to be ready to accept these counsels which sometimes are going against the ancestral traditions. To accept, you have to understand that education is the key to change. At all levels, in ministries, hospitals, schools, homes, families ... so that everyone can say to themselves:

I change my behavior to limit the effects of climate change and ask others to do the same.

Do we have to ask ourselves whether the importance of a reaction is more palpable when looking at monetary costs? The cost of direct climate change damage to health is estimated at US \$ 3 billion per year by 2030.

The export of US oil, added to Saudi Arabia's desire not to impose quotas, is already keeping oil prices low. These are short term solutions which revive economies and allow

governments to budget for health systems. But what about the impact on global warming and the costly development of renewable energies?

Rising sea levels and the increasing number of extreme weather events will destroy homes, medical facilities and a multitude of essential services. In 2016, more than half of the world's population lives within 37 miles of the coast. People will be forced to move. Today, we're trying to solve an immigration problem on the shores of the Mediterranean sea, but what will be we do when climate refugees are in front of us, as enlightened as we are, and only have burnt or submerged land to turn to for resettlement? ■

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