

Impacts of Climate Change on Human Health in Cyprus

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Nowadays, everyone on the planet talks about the climate crisis. Climate change is one of the greatest environmental, social and economic threats facing our planet today. Human destroys thoughtlessly the environment without thinking the repercussions that may appear not only on himself but also on everybody around him. This destruction has as a result a total climate change, with effects as low rainfall, increase the hole of ozone and appear the greenhouse. All those lead to the overheat of the planet. The Earth's climate is warming rapidly due to the emissions of greenhouse gases from human activities such as the burning of fossil fuels and deforestation. Since 1850, the average surface temperature has risen by 0.76°C, with most of the warming occurring over the last half-century. (1) However, we should try to inform people about the consequences of this destruction and try to show people how they can protect the environment proportionally.

Current climate trends point to the likelihood that southern Europe will become drier in the future. Extreme events are expected to increase in frequency and severity, particularly heat-waves and droughts. The research project "Climate change and adaptation strategies for human health in Europe" (cCASHh) (May 2001-July 2004), coordinated by WHO and supported by the Energy, Environment and Sustainable Development Programme in the frame of the Fifth European Union Framework Programme for Research and Development, identified a range of options that have been taken or could be taken by European policy-makers to prevent, prepare and respond to the effects of weather and climate variability on human health. (10)

In Cyprus, everyone can see that the climate has changed a lot by the beyond of years. Winters last much shorter than some years ago, the rainfall has been decreased and dams in Cyprus are almost empty. More specifically, the average annual temperature increased around 0.8° C in the last thirty-year period, and precipitation dropped off 17 % in the second half of this century. (3) Reduced precipitation and increased temperatures already had an adverse impact on the availability of the natural water resources, which were reduced by 40% from the estimates made in 1970 for the preparation of the Cyprus Water Master Plan. Especially, droughts and related water scarcity are more frequent than before. Due to climate change, the Government was forced to introduce seawater desalination already in 1997 (not in 2005-2010 as planned), accelerate the construction of the domestic effluents reuse projects and intensify the implementation of water demand measures. (4) All Cypriots must worry about that and think how they can resolve this problem before it will be late. So our force, the adults, the kids and every person in Cyprus must think the importance of good climate and how they can save the environment for their good.

There is now stronger, global scientific consensus that warming of the climate system is unequivocal and is affecting human health. Evidence also highlights the fact that the negative impact of climate change on health are already happening, will continue and increase in severity and will affect those most vulnerable. Climate change will act in many ways as a multiplier of existing environment and health problems. Health and the distribution of health are a major measure of human well-being. So far health and equity considerations are not fully part of the climate change agenda, and climate change only started now to be taken into consideration in health agendas.

The primary concern in Europe and Cyprus is linked to heat-related mortality and morbidity, due to increases in annual temperature and extremes of heat, although these issues are also influenced by socio-economic changes due to population growth, age distribution and other factors, such as migration. In EU countries, it is estimated that mortality increases by 1–4% for each one-degree rise in temperature, meaning that heat related mortality could rise by 30 000 deaths per year by the 2030s and by 50000 to 110 000 deaths per year by the 2080s. (6) The elderly, in which the ability to control and regulate body temperature is reduced, are most at risk of death from heat stroke and cardiovascular, renal, respiratory and metabolic disorders. Whilst the numbers of total deaths are strongly related to population size, the change in death rates can be much greater in regions where conditions are conducive to greater warming. Moreover, early-summer heat-waves are associated with higher mortality than late season heat-waves. (10)

In addition to this, temperature-sensitive infectious diseases, such as food-borne infections are likely to grow in Cyprus. In general, cases of salmonellosis, increase by 5% to 10% for each one-degree increase in weekly temperature, for ambient temperatures above about 5° C. The number of cases of salmonella can be reduced by controlling and monitoring along the food chain. The level of implementation varies by countries. High levels of control measures and more information on food handling and storage would be needed to confront the potential climatic risks. (10)

Furthermore, a great deal of attention has been devoted to changes in vector-borne disease patterns in relation to climate change. It is proved that climate change leading to changes in infectious disease transmission by vectors such as mosquitoes and ticks, as a result of changes in their geographic range, seasons of activity and population size; land use changes and socio-economic factors will continue to be important too. A number of models have investigated the potential increase of malaria risk in parts of Europe. Although accurate predictions are difficult at the present time, there is agreement nevertheless that the overall risk of transmission of malaria related to localized climate change is very small, especially where there are adequate health services and good management of mosquito control. Nonetheless, new challenges may emerge, as changes in vector distribution and capacity, particularly in combination with increased human mobility, could facilitate the introduction and local transmission of new emerging pathogens. (2)

Moreover, a number of water-borne diseases can be existed in Cyprus. Higher water temperatures may result in increased occurrence of harmful algal blooms. Increased faecal bacteria contamination is also likely to affect drinking water intakes and areas of water used for recreation. Furthermore, the scarcity of suitable water for routine hygiene practices of high significance for health such as proper hand washing might contribute to more infectious diseases outbreaks. (2)

Diarrhoeal diseases are one of the most important causes of ill health in Europe in children, from food-borne and waterborne infections. They are recognized to be highly sensitive to climate, showing strong seasonal variations in numerous sites. (14)

Additional, there are a number of other health issues emerging from climate change in Cyprus. Whilst air pollution levels have fallen dramatically in recent decades, the health risks of air pollution are still significant, primarily from particulate matter and ozone. (12) However, future policy on air quality and on climate mitigation is very likely to determine any future increase in respiratory diseases and

mortality. The most significant effects of climate change are likely to be in relation to ozone, which is a major pollutant in many parts of Europe.

Warming is likely to facilitate the earlier onset and possibly longer duration of flowering and pollen seasons for some grasses and weeds. (10) The potential for an increase in the seasonality and duration of allergic disorders, such as 'hay fever', asthma, with implications for direct costs in terms of care and medicines, as well as lost working hours. Finally, there may be other indirect health effects due to climate change acting on other health determinants, such as on indoor and outdoor air quality, the level of air pollution and the nature, severity and timing of air allergens, such as pollen or mould. Populations at potential risk include children and the elderly. However, people already suffering from chronic respiratory conditions such as asthma, serious allergies or chronic obstructive pulmonary disease will be particularly at risk.

Another indirect impact of climate change on health comes from potentially changing ultraviolet radiation. In my view, this is the most important impact in Cyprus, which has very high temperatures in the summer. It has already been shown that higher ambient temperatures will influence clothing choices and time spent outdoors, potentially increasing ultraviolet exposure in some regions. Aspects of potential UV threat are explored by the EUROSUN project on the quantification of sun exposure in Europe and its effects on health. The aim of this project, which is funded by the Community Health Programme, is to monitor ultraviolet exposure and its correlation with the incidence of skin cancers, including malignant melanoma and cataracts. (13)

We know already that psychological effects following acute disasters can be considerable, especially in high risk groups like children. The multiplication of disasters due to adverse climate change conditions could therefore lead to the increase of incidence of people affected in this respect. (2)

Moreover, as already estimated in relation to the impact of heat waves, the overall health effects of climate change should be unevenly distributed across the regions of Europe. Since health and well being are also strongly related to socio-economic drivers such as income, housing, employment, education, gender and lifestyle, the impacts of climate change should alter health inequalities within and between countries, and lead to uneven distribution and additional burdens for lower income groups and certain vulnerable groups, such as children, those working outdoors, the elderly, women and people with a pre-existing illness. (2)

In addition to this, the impact of climate change on national economies, availability of food and water, as well as the rise in sea levels, has as possible to increase the migration of the population worldwide. Some groups estimate that more than 1 billion people may be forced to move between now and 2050 and in a dire global crisis with more far-reaching consequences than the aftermath of World War II. This huge displacement of people is likely to lead to conflict and disputes over land as they try to settle elsewhere, for example near reliable water supplies. Many may move to from harvest –depleted rural areas into cities, putting a greater strain on energy supplies and other resources there. (1) However, the exacerbated environmental conditions will predominantly impact internal and intra-regional mobility. The growing needs for humanitarian assistance and health protection of vulnerable groups migrating both to and even within the EU territory could require an enhanced capacity of Member States' health systems. We could also anticipate an increase in displaced populations arriving from non-Member States to the EU territory, which is a frequent migratory destination, to exacerbate the challenge to

Member States' health systems. Providing EU support to the source countries of migration to deal with a potential impact of climate change and with displaced people on the spot will mitigate a potential impact of climate change on the internal and intra-regional displacement of people. These measures may mitigate or limit the potential problems that Member States could face. Similarly national health systems in the EU could benefit from preparedness planning to improve their capacity to deal with such challenges. (2) Therefore, global warming could create a new class of 'climate change refugees' forced to leave their homes, especially in Africa. Thus, Cyprus public health infrastructure must be adequately prepared for the likely changes in climate that may cause a rapid influx of climate refugees from surrounding countries. The resulting mass migration will lead to many serious health problems both directly, from the various stresses of the migration process, and indirectly, from the possible civil strife that could be caused by chaotic movement of people. Drought and desertification frequency and intensity will increase in surrounding countries, causing health problems and also influencing population migration. (7) It is estimated that 72% of the dwellers in African cities live in slums, which, having poor drainage facilities, are especially prone to flooding and ill health. (8) Action Aid ran analyses of slum dwellers in six African cities and found intracity flooding and the consequence on hygiene and sanitation to be a major health concern. (9)

Last but not least, health systems are vulnerable to extreme climatic events. Indeed, climate change might have an impact on health systems by increasing the demand for health services beyond the capacities of those systems. It may also interfere with their ability to cope with demand by undermining infrastructure, technology and the availability of workforce. This is linked to emergency preparedness and response. (2)

Experts surveyed within the cCASHh study ranked income, equality, type of health care system, and quick access to information as most important factors enabling effective response to climate change. Countries in the WHO European Region vary tremendously in their response capacities. (15) Those with the highest adaptive capacities tend to have high incomes, universal health care coverage and high access to information. Concerns were raised about a negative impact on "adaptability" in parts of Europe with rising inequalities, falling prevention investment and aging populations. Cyprus has a middle effective response to climate changes among 22 European and Central Asian countries. (10) Despite the fact that Cyprus is a developed country, the above study indicates that Cyprus is not prepared to deal with the problem. In my opinion, this happens due to the fact that the Government of Cyprus have just started to take into account the threats of climate changes. The Ministries of Cyprus have just started the researches, in order to identify the adverse impacts of global warming in Cyprus in different fields. The results will be important, in order to anticipate the huge problem.

To conclude with, I am going to mention some important things in order to improve EU and, more specifically, Cyprus capacity to react to Climate Change in relation to human health and to improve health security.

To begin with, climate change and health featured in the European Charter on Environment and Health, adopted in Frankfurt in 1989 and on the agendas of the third and fourth ministerial conferences on environment and health (in 1999 and 2004, respectively). They recommended the establishment of a Europe-wide interagency network for monitoring, researching and reviewing the early human health effects of climate change and action to reduce the current burden of disease resulting from extreme weather and climate events through a proactive and multidisciplinary

approach. The World Health Assembly adopted a resolution in May 2008 to strengthen WHO engagement and urges Member States to strengthen action and each region is looking at ways to implement the resolution. (5)

Moreover, the Health Security Committee (HSC) was set up by the Council as an informal committee to address preparedness for and responses to major health threats. It focuses on three areas, each assisted by a section consisting of representatives of the Member States. These areas are: (1) generic preparedness and response for public health emergencies; (2) response to chemical, biological and radionuclear (CBRN) attacks, and (3) influenza preparedness and response. On the basis of the work of the HSC, the Commission adopted a Communication (COM 2005/605 final of 28.11.2005) on strengthening coordination of generic preparedness planning for public health emergencies at EU level. A co-ordinated response during a public health emergency requires linking the relevant health crisis centres at the level of Member States, Commission and EU and international agencies. The requirements for proper command and control include: situational awareness of casualties and resources, co-ordination of the response and of communications, information analysis and management and simulation for event-analysis and training. (2) Cyprus, as a member of EU has also advantages from this Committee.

Additional, the EU health program is also important. As a logical extension of preparedness, there will be a need for awareness of change and of surveillance and monitoring. A number of tools are already available following the support given to projects under the EU health programme, particularly in the wake of extreme weather events in Europe over recent years. The EU Health Programme supports projects and actions to improve health information and knowledge for the development of environmental health information systems: addressing environmental exposures, urban air pollution or monitoring of ultraviolet exposure and its effects on incidence of skin cancers and cataracts. (2)

Furthermore, the role of the European Centre for Disease and Control prevention (ECDC) is also important for EU countries. The ECDC has thoroughly investigated the topic of impacts on health caused by climate change. (2)

In order the above to be achieved, every country, individually, has to participate in its own projects regarding climate changes. Cooperation is also necessary with international organisations and with the priority partner countries at global level as well as with the Enlargement and ENP countries at the European and regional levels, and to invite the neighbouring countries to participate in joint actions and encourage them to undertake the necessary work and measures, including the development of national strategies.

Lastly, many of the health effects can be controlled by strengthening health systems. (11) Major efforts are needed to empower health systems to generate knowledge, build capacity and to inform and influence action in key national and international processes that guide policy and allocate resources for work on climate change. Health systems require strengthening to face in particular acute risks and emergencies but also to face the long term consequences of climate change. This can include strengthening preparedness, public health services and health security, advocating action in other sectors to benefit health, better informing citizens and leading by example. Health systems need to strengthen their capacity to assess potential climate-related health effects, to review their capacities to cope, and develop and implement adaptation and mitigation strategies.(11) Major actions in adapting to climate change are needed across sectors including environment, transport, energy, agriculture, etc. These will be important to ensure population well-being in future

years to come. Mitigation and adaptation can have co-benefits for human health and equity. Current existing actions, policies and measures might become insufficient at higher levels of risks or in the face of more frequent and intense events, or more rapid climate change. There will need to be robust communication channels to share experiences and actions. (5)

To sum up, climate change is a global phenomenon. It is widely accepted that the biggest single human influence on global climate is via emission of greenhouse gases. Anthropogenic sources are the real causes of this huge problem facing mankind. As can be shown from above, there will be several adverse health effects in Cyprus, regarding climate changes. For this reason, we have to worry about that and think how we can resolve this problem before it will be late. It is important for our lives, for future lives and for our planet to deal with this severe problem!



<http://watersecretsblog.com/archives/news/index.html>

Picture 1: Drought in Cyprus, as the major impact of climate change, leads to lack of water.

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