

CLIMATE CHANGE – OVERVIEW OF IMPACTS AND GLOBAL CONTEXT

We care for climate change because we have already warmed Earth's surface temperature by 1.2 degrees Celsius since the beginning of the industrial era (World Meteorological Organization, 2016). The current rate in which humanity emits greenhouse gases into the atmosphere puts us on track to warm Earth's surface temperature by 4-6 degrees Celsius by the end of this century (IPCC, 2014, Synthesis Report, pp. 17-25).

This warming means that by the end of this century the ability to grow food in vast regions across the globe will decline by 40-60% (ibid, pp. 64-73), and sea levels will rise by at least one meter (ibid, pp. 42-43). Recent estimations published by a group of leading scientists studying loss of ice mass in Greenland (Kjeldsen *et al.*, 2015) and in Antarctica (Hansen *et al.*, 2016), claim that by the end of this century sea levels are anticipated to rise by several meters. This rise will submerge low-lying coastal regions and cities (IPCC, 2014, Synthesis Report, pp. 42-43; Hansen *et al.*, 2016).

A substantial sea level rise, coupled with a sharp decline in the ability to grow food, will cause hundreds of millions of people to become refugees (IPCC, 2014, Impacts, Adaptation, and Vulnerability, pp. 766-771).

The technology to generate 100% of humanity's energy via renewable energies already exists. A work promoted by several technological universities delineates a detailed roadmap on how to transition 139 countries into using 100% renewable energies (wind, water and sunlight) in all sectors (electricity, transportation, industry, agriculture, aviation, shipping) by the year 2050 (Jacobson *et al.*, 2016).

Implementing this transition would cost humanity approximately \$2.9 trillion every year from 2016 to 2050 (ibid, p. 1). However, the resources to make this transition exist. According to the International Monetary Fund, the oil-coal-gas industry receives subsidies and tax relief every year that amount to \$5.3 trillion (IMF, 2015, p. 5).

References

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