

BULGARIA



HEALTH AND CLIMATE CHANGE **COUNTRY PROFILE 2021**



United Nations
Framework Convention on
Climate Change

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HOW TO USE THIS PROFILE

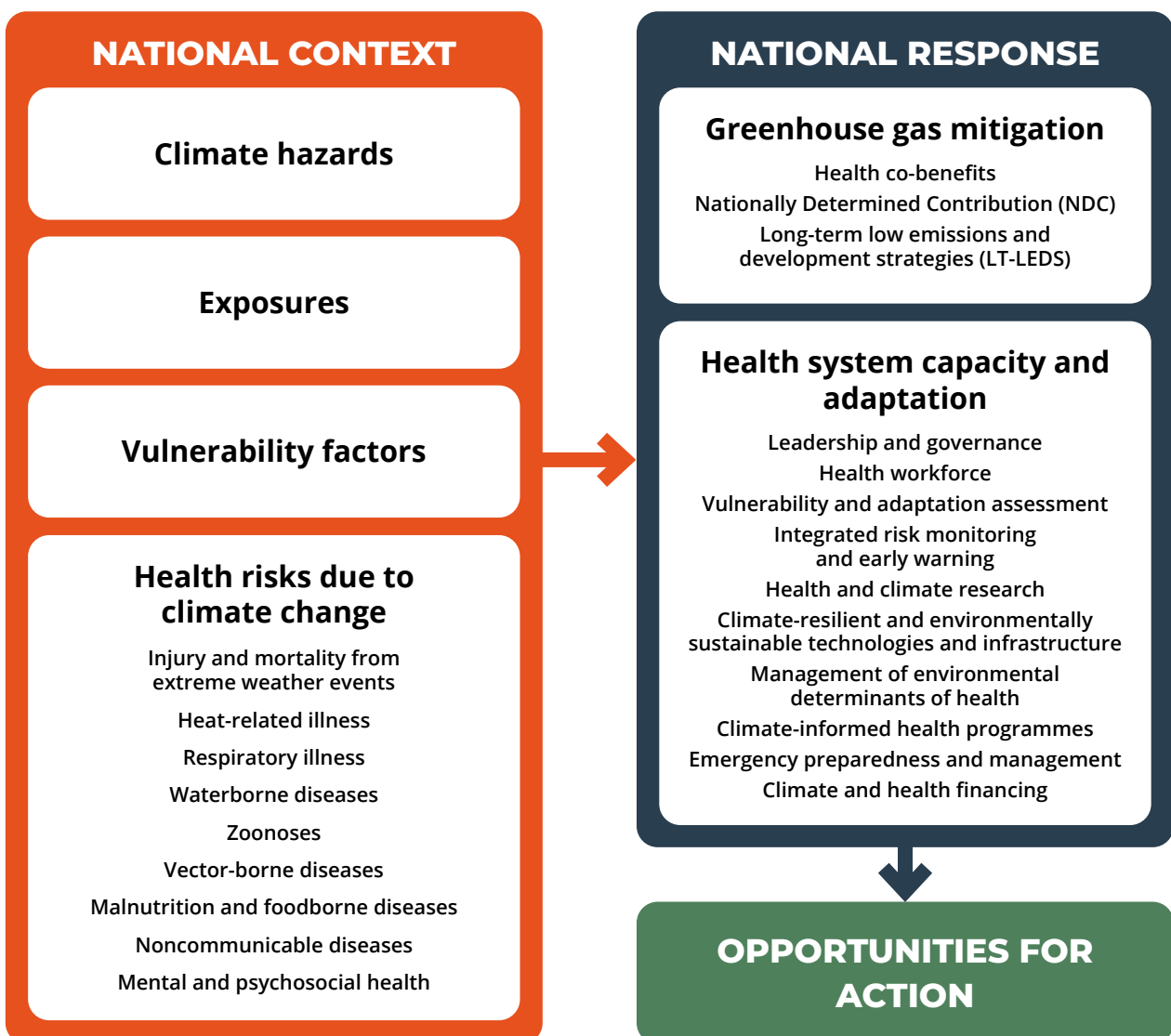
This health and climate change country profile presents a snapshot of country-specific climate hazards, climate-sensitive health risks and potential health benefits of climate change mitigation. The profile is also a key tool in monitoring national health sector response to the risk that climate variability and climate change pose to human health and health systems. By presenting this national evidence, the profile aims to:

- Raise awareness of the health threats of climate change within the health sector, other health-related sectors and among the general public;
- Monitor national health response;
- Support decision-makers to identify opportunities for action;
- Provide links to key WHO resources.

Tools to support the communication of the information presented in this country profile are available. For more information please contact: nevillet@who.int

The diagram below presents the linkages between climate change and health. This profile provides country-specific information following these pathways. **The profile does not necessarily include comprehensive information on all exposures, vulnerability factors or health risks** but rather provides examples based on available evidence and the highest priority climate-sensitive health risks for your country.

CLIMATE CHANGE AND HEALTH



COUNTRY BACKGROUND

Located in southeastern Europe, Bulgaria's topography consists of hills and mountains (around 60%) and forests (around 34%) (1). Classified as an upper-middle income country, Bulgaria's economy predominantly depends on the private sector, which accounts for more than 80% of the national GDP; scientific and technological research are at the top of the budgetary expenditure (2). Bulgaria's overall population has decreased, but the urban population is increasing, while the rural population is decreasing (1).

Bulgaria's climate is temperate continental with an influence from the subtropical climate of the Mediterranean. High altitude areas receive the most precipitation. Bulgaria has experienced a rise in temperatures; changing precipitation patterns (including drought and flood events); less snow cover; and severe storms. Climate-related health risks include atypical infectious diseases, such as malaria; ambient air pollution; and heat stress (affecting outdoor workers in particular) (1,3).

There have been many extreme weather events in Bulgaria in recent years, with injuries, deaths and material losses; for example, flash floods (in January 2021 and June 2014), droughts, tornadoes and storms. Indeed, the number of extreme weather events has risen by 30% in Bulgaria in the period 1991–2007, compared with the period 1961–1990, and is estimated to have risen by 50% in 2020. By 2050, the number of extreme weather events in Bulgaria could triple (data provided by the Ministry of Health).

Bulgaria, as a member of the European Union (EU), is committed to the European Nationally Determined Contribution (NDC), which seeks to mitigate at least 55% of its greenhouse gas emissions by 2030 compared with the 1990 levels (4). Bulgaria's National Adaptation Strategy identifies health adaptation options, such as education and awareness programmes, and assessing health vulnerability at the national and local level (3).

CLIMATE-SENSITIVE HEALTH RISKS – BULGARIA

Health risks

Health impacts of extreme weather events	●
Heat-related illnesses	●
Respiratory illnesses	●
Waterborne diseases and other water-related health impacts	●
Zoonoses	●
Vector-borne diseases	●
Malnutrition and foodborne diseases	●
Noncommunicable diseases	○
Mental/psychosocial health	●
Impacts on health care facilities	○
Effects on health systems	○
Health impacts of climate-induced population pressures	○

● yes ● no ○ unknown / not applicable

Source: Government of Bulgaria, 2014 (5).

CURRENT AND FUTURE CLIMATE HAZARDS

CLIMATE HAZARD PROJECTIONS FOR BULGARIA

Country-specific projections are outlined up to the year 2100 for climate hazards under a 'business as usual' (BAU) high emissions scenario compared to projections under a 'two-degree' scenario with rapidly decreasing global emissions (see Figures 1–5).

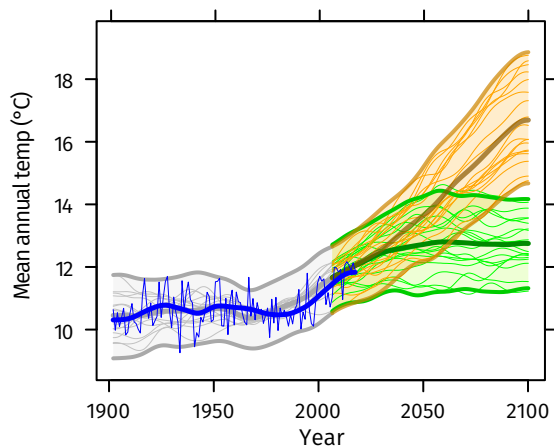
The climate model projections given below present climate hazards under a high emissions scenario, Representative Concentration Pathway 8.5 (RCP8.5 – in orange) and a low emissions scenario (RCP2.6 – in green).^a The text describes the projected changes averaged across about 20 global climate models (thick line). The figures^b also show each model individually as well as the 90% model range (shaded) as a measure of uncertainty and the annual and smoothed observed record (in blue).^c In the following text the present-day baseline refers to the 30-year average for 1981–2010 and the end-of-century refers to the 30-year average for 2071–2100.

Modelling uncertainties associated with the relatively coarse spatial scale of the models compared with that of geographically small countries are not explicitly represented. There are also issues associated with the availability and representativeness of observed data for some locations.



Rising temperature

FIGURE 1: Mean annual temperature, 1900–2100

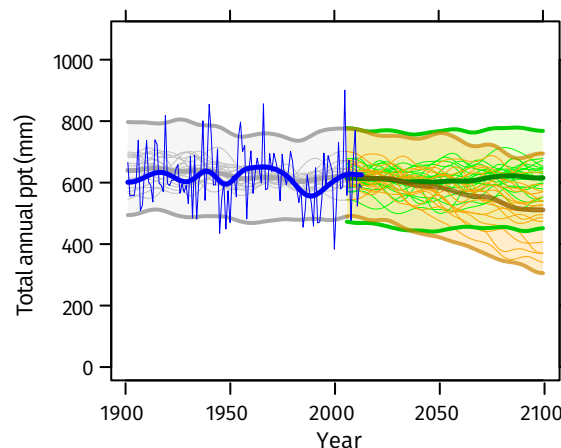


Under a high emissions scenario, the mean annual temperature is projected to rise by about 4.8°C on average by the end-of-century (i.e. 2071–2100 compared with 1981–2010). If emissions decrease rapidly, the temperature rise is limited to about 1.5°C.



Decrease in total precipitation

FIGURE 2: Total annual precipitation, 1900–2100



Total annual precipitation is projected to decrease by about 15% on average under a high emissions scenario, although the uncertainty range is large (-33% to +2%). If emissions decrease rapidly, there is little projected change on average with an uncertainty range of -6% to +8%.

NOTES

^a Model projections are from CMIP5 for RCP8.5 (high emissions) and RCP2.6 (low emissions). Model anomalies are added to the historical mean and smoothed.

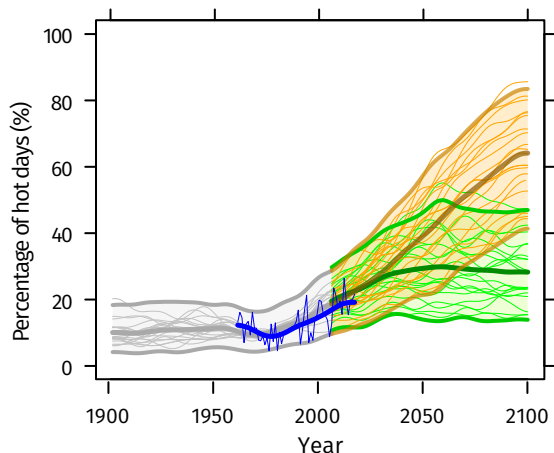
^b Observed historical record of mean temperature and total precipitation is from CRU-TSv3.26. Observed historical records of extremes are from JRA55 for temperature and from GPCC-FDD for precipitation.

^c Analysis by the Climatic Research Unit, University of East Anglia, 2018.



More high temperature extremes

FIGURE 3: Percentage of hot days ('heat stress'), 1900–2100



The percentage of hot days^d is projected to increase substantially from about 15% of all days on average in 1981–2010 (10% in 1961–1990). Under a high emissions scenario, about 60% of days on average are defined as 'hot' by the end-of-century. If emissions decrease rapidly, about 30% of days on average are 'hot'. Similar increases are seen in hot nights^d (not shown).



Drought frequency and intensity

FIGURE 5: Standardized Precipitation Index ('drought'), 1900–2100

The Standardized Precipitation Index (SPI) is a widely used drought index which expresses rainfall deficits/excesses over timescales ranging from 1 to 36 months (here 12 months, i.e. SPI12). It shows how at the same time extremely dry and extremely wet conditions, relative to the average local conditions, change in frequency and/or intensity. SPI is unitless but can be used to categorize different severities of drought (wet): above +2.0 extremely wet; +2.0 to +1.5 severely wet; +1.5 to +1.0 moderately wet; +1.0 to +0.5 slightly wet; +0.5 to -0.5 near normal conditions; -0.5 to -1.0 slight drought; -1.0 to -1.5 moderate drought; -1.5 to -2.0 severe drought; below -2.0 extreme drought.

Under a high emissions scenario, SPI12 values are projected to decrease from about 0 to -0.6 on average by the end-of-century (2071–2100) indicating an increase in the frequency and/or intensity of dry episodes and drought events. If emissions decrease rapidly, there is little change although year-to-year variability remains large.

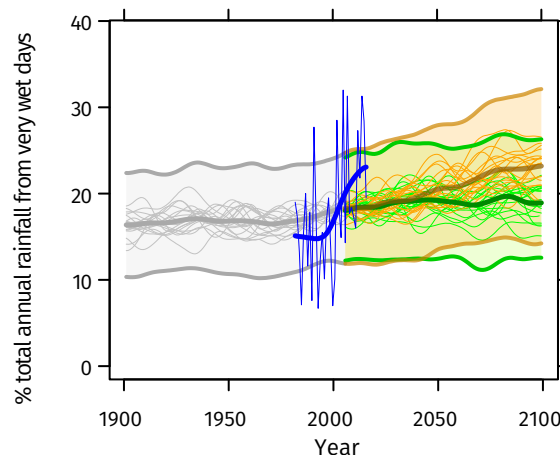
^d A 'hot day' ('hot night') is a day when maximum (minimum) temperature exceeds the 90th percentile threshold for that time of the year.

^e The proportion (%) of annual rainfall totals that falls during very wet days, defined as days that are at least as wet as the historically 5% wettest of all days.

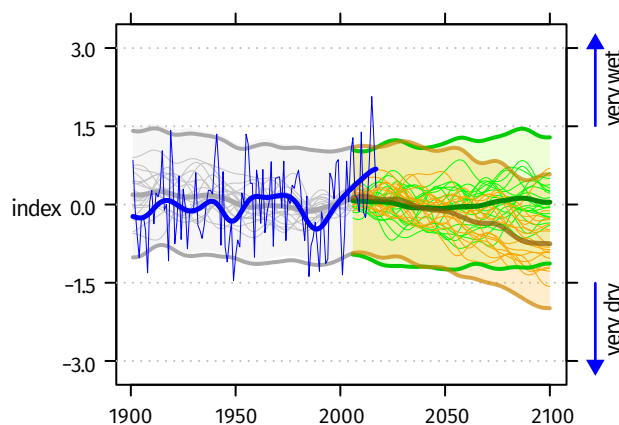


Increase in extreme rainfall

FIGURE 4: Contribution of very wet days ('extreme rainfall' and 'flood risk') to total annual rainfall, 1900–2100



Under a high emissions scenario, the proportion of total annual rainfall from very wet days^e (about 15% for 1981–2010) could increase by the end-of-century (to about 25% on average with an uncertainty range of about 15% to 30%), with little change if emissions decrease rapidly. These projected changes are accompanied by a decrease in total annual rainfall under a high emissions scenario (see Figure 2).




HEALTH RISKS DUE TO CLIMATE CHANGE

HEAT STRESS

CLIMATE HAZARDS^a

 Up to 4.8°C mean annual temperature rise by the end-of-century.

 About 60% of days could be 'hot days' by the end-of-century.

EXPOSURES

Population exposure to heat stress is likely to rise in the future, due to increased urbanization (and the associated urban heat island effect) and climate change increasing the likelihood of severe heat waves (periods of prolonged heat).

EXAMPLE VULNERABILITY FACTORS^b



Age (e.g. the elderly and children)



Biological factors and health status



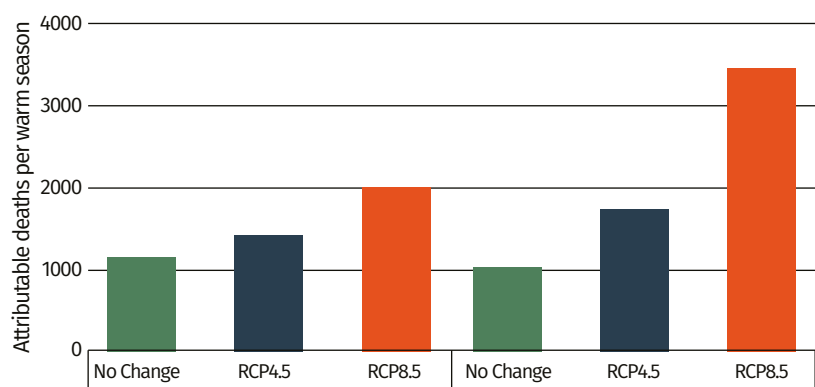
Geographical factors (e.g. urbanization)



Socioeconomic factors (e.g. occupation and poverty)

HEALTH RISKS^c

FIGURE 6: Attributable deaths per warm season in Bulgaria expected for the future time period 2036–2064 and 2071–2099 under the reference scenario (apparent temperatures at the historical levels observed during the period 1971–2001) and additional attributable deaths in relation to this counterfactual as expected under the RCP4.5 and RCP8.5 scenarios (6)



预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_23285

