occupied Palestinian territory

HEALTH AND CLIMATE CHANGE

PROFILE 2022

World Health Organization

United Nations
Framework Convention on
Climate Change

CONTENTS

ACKNOWLEDGEMENTS

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HOW TO USE THIS PROFILE

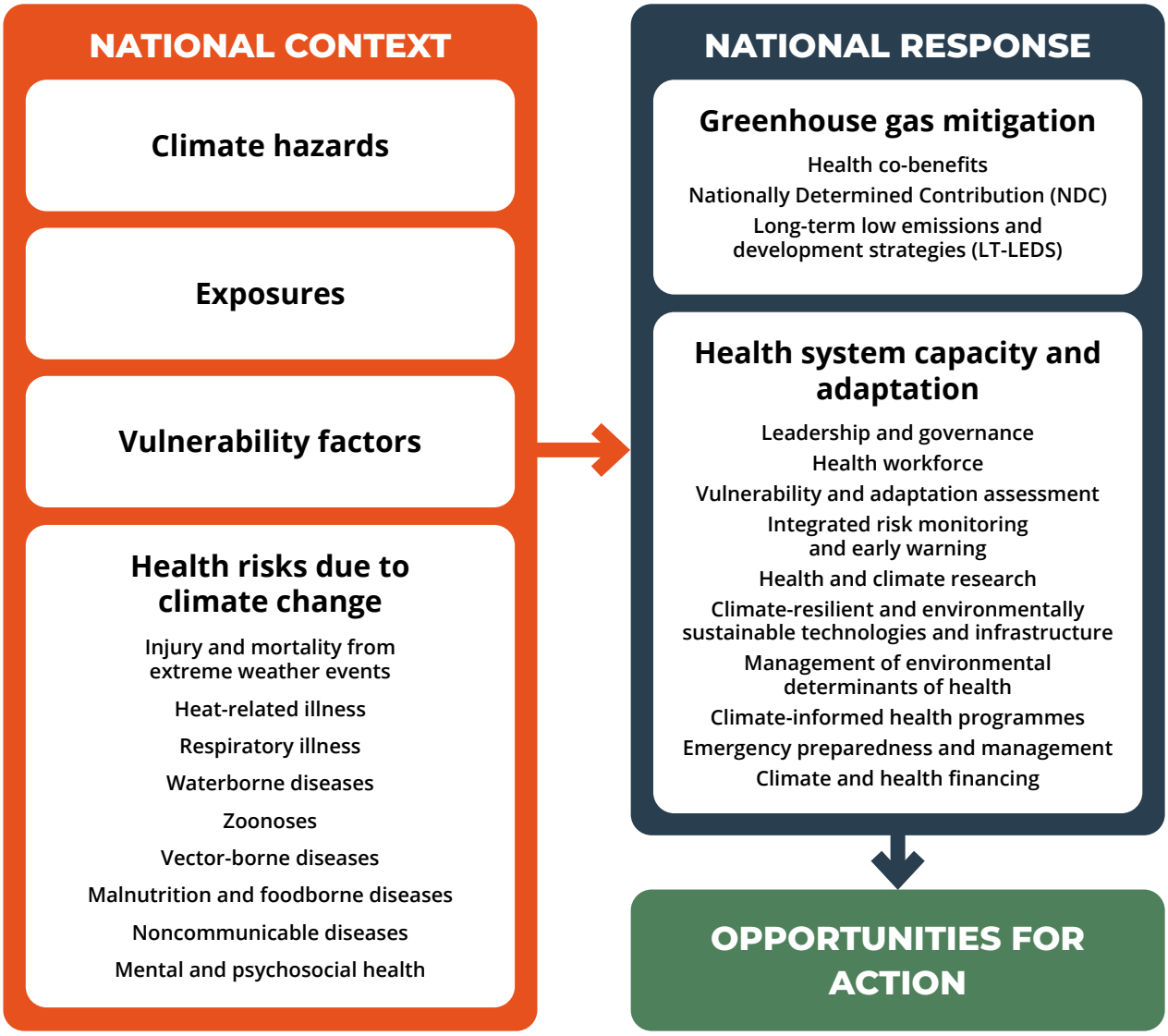
This health and climate change profile presents a snapshot of country-specific climate hazards, climate-sensitive health risks and potential health benefits of climate change mitigation. The profile is also a key tool in monitoring national health sector response to the risk that climate variability 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 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 or area.

CLIMATE CHANGE AND HEALTH



BACKGROUND

Located in the Middle East, the occupied Palestinian territory (oPt)[a] has a climate that varies from semi-arid to arid from the west to the east. Access to surface and groundwater resources is limited and habitants face different pressures on access to water resources. Indeed, oPt is recognized as having one of the smallest supplies of renewable water resources per capita *(1)*.

The National Adaptation Plan (NAP) for oPt indicates that temperatures in oPt will increase and rainfall will be more varied and extreme; thus the risk of drought and floods will likely increase *(2,3)*. The NAP recognizes the health sector as highly vulnerable to the effects of climate change, with climate-related health risks including higher incidence of waterborne diseases, foodborne diseases, and malnutrition from food insecurity *(1,3)*. Approved in 2016, the NAP identifies a set of highly vulnerable issues concerning 12 themes and sectors, including agriculture, water, energy, food and health *(2,3)*.

The Nationally Determined Contribution (NDC) for oPt seeks to mitigate its greenhouse gas emissions through a wide variety of actions, such as the installation of photovoltaic systems; the use of wastewater treatment plants; and afforestation projects to increase carbon sequestration *(2)*.

CLIMATE-SENSITIVE HEALTH RISKS – oPt

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: List of climate-sensitive health risks adapted from the Quality Criteria for Health National Adaptation Plans, WHO (2021) *(4)*.

[a] "occupied Palestinian territory" and "oPt" should be understood to refer to the "occupied Palestinian territory, including east Jerusalem".

CURRENT AND FUTURE CLIMATE HAZARDS

CLIMATE HAZARD PROJECTIONS FOR THE oPt

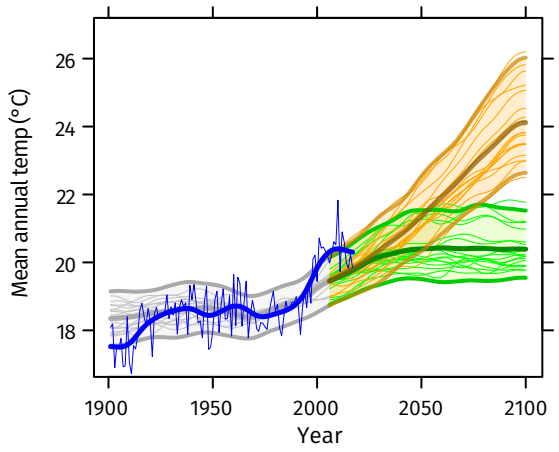
Country-specific projections are outlined up to the year 2100 for climate hazards under a 'business as usual' (BAU) high emissions scenario compared to projections under a 'two-degree' scenario with rapidly decreasing global emissions (see Figures 1–5).

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

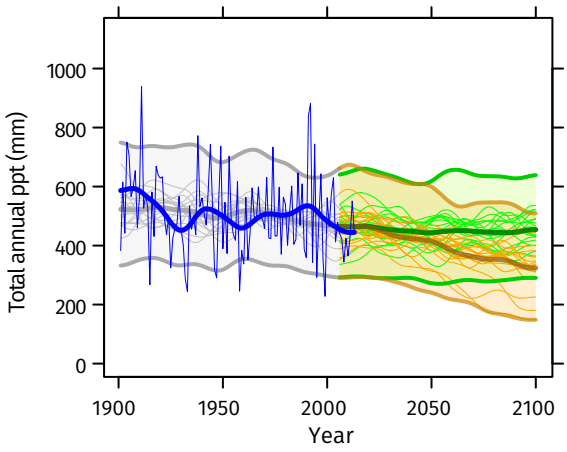
FIGURE 1: Mean annual temperature, 1900–2100



Under a high emissions scenario, the mean annual temperature is projected to rise by about 4.4°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 1.3°C.

Decrease in total precipitation

FIGURE 2: Total annual precipitation, 1900–2100



Total annual precipitation is projected to decrease by about 30% on average under a high emissions scenario, although the uncertainty range is large (-47% to -12%). If emissions decrease rapidly, there is little projected change on average: a decrease of 6% with an uncertainty range of -15% to +6%.

NOTES

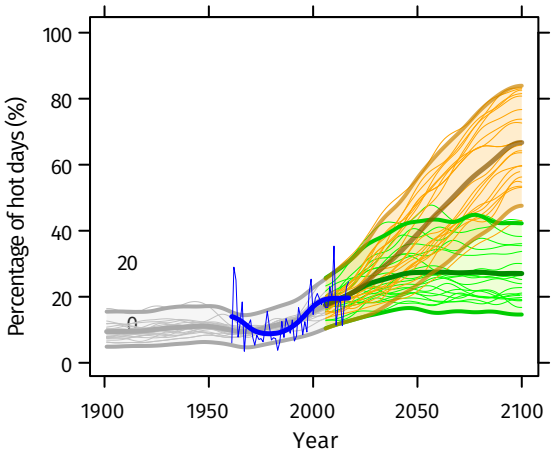
[a] Model projections are from CMIP5 for RCP8.5 (high emissions) and RCP2.6 (low emissions). Model anomalies are added to the historical mean and smoothed.

[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

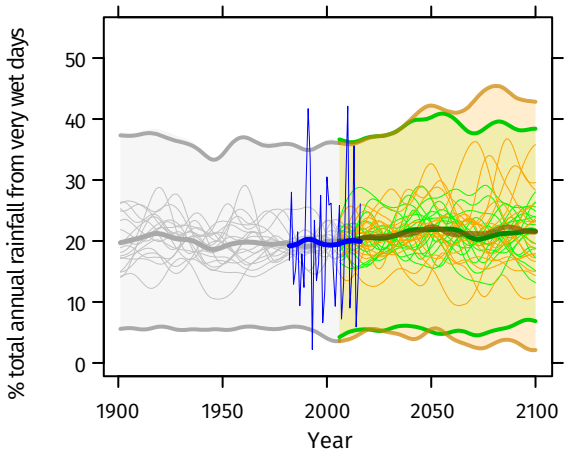
FIGURE 3: Percentage of hot days ('heat stress'), 1900–2100



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 25% of days on average are 'hot'. Similar increases are seen in hot nights[d] (not shown).

Small increase in extreme rainfall

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



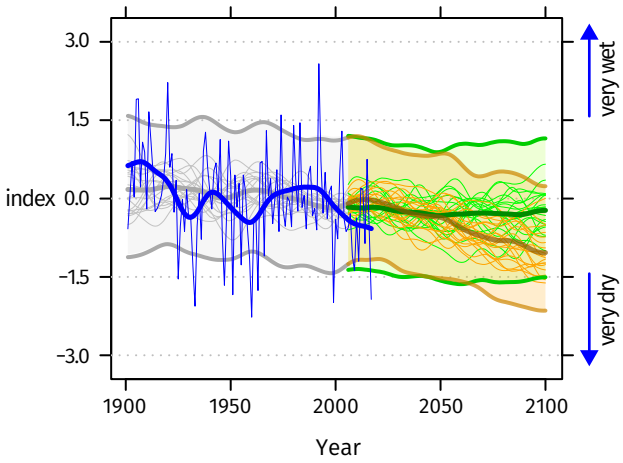
Under a high emissions scenario, the proportion of total annual rainfall from very wet days[e] (about 20% for 1981–2010) could increase very slightly by the end-of-century (to about 22% on average with an uncertainty range of about 5% to 45%), with even less change if emissions decrease rapidly. These projected changes are accompanied by decreases in total annual rainfall (see Figure 2).

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).[f] 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.

Under a high emissions scenario, SPI12 values are projected to decrease from about -0.1 to -0.9 on average by the end-of-century (2071–2100) indicating an increase in the frequency and/or intensity of dry episodes and drought events and a decrease in the frequency and/or intensity of wet events. If emissions decrease rapidly, there is little change although year-to-year variability remains large.[f]



[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.

[f] SPI is unitless but can be used to categorize different severities of drought (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.

HEALTH RISKS DUE TO CLIMATE CHANGE

HEAT STRESS

CLIMATE HAZARDS[a]

Up to 4.4°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 as heat waves are projected to increase. Increased urbanization (and the associated urban heat island effect) is expected to further exacerbate this risk.

EXAMPLE VULNERABILITY FACTORS[b]

Age (e.g. the elderly and children)

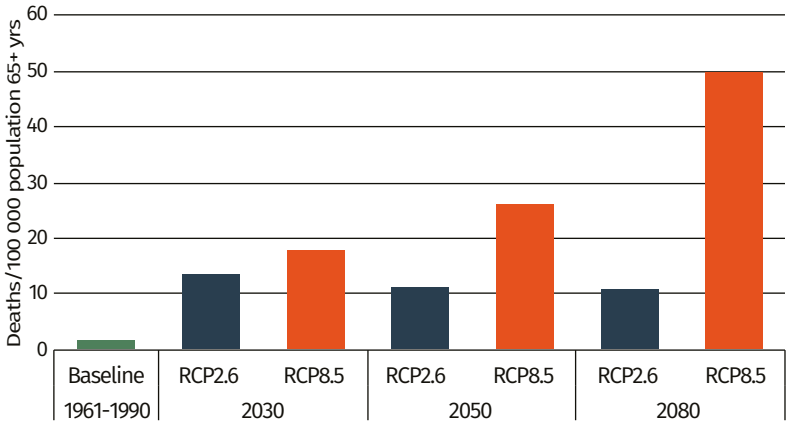
Biological factors and health status

Geographical factors (e.g. urbanization)

Socioeconomic factors (e.g. occupation and poverty)

HEALTH RISKS[c]

FIGURE 6: Heat-related mortality in population 65 years or above, oPt (deaths/100 000 population 65+ yrs)[d] *(5)*



The health risks of heat stress include heat-related illnesses such as dehydration, rash, cramps, heatstroke, heat exhaustion and death.

Current heat-related deaths among the elderly (65+ years) are under 2 per 100 000. Under a high emissions scenario (RCP8.5), heat-related deaths among the elderly (65+ years) are projected to rise to about 50 per 100 000 by 2080. A rapid reduction in emissions (RCP26) could significantly reduce deaths among the elderly in 2080 to around 11 per 100 000 *(5)*.

[a] For details see "Current and future climate hazards".

[b] These vulnerability factors are not comprehensive but rather examples of relevant vulnerability factors. Please see the WHO Quality Criteria for Health National Adaptation Plans for more details: https://www.who.int/publications/i/item/quality-criteria-health-national-adaptation-plans.

[c] See "National health response: health system capacity and adaptation" for the national response to heat stress.

[d] Country-level analysis, completed in 2015, was based on health models outlined in the Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s. Geneva: World Health Organization, 2014. The mean of impact estimates for three global climate models are presented. Models assume continued socioeconomic trends (SSP2 or comparable).

FOOD SAFETY AND SECURITY

CLIMATE HAZARDS[a]

Up to 4.4°C mean annual temperature rise by the end-of-century.

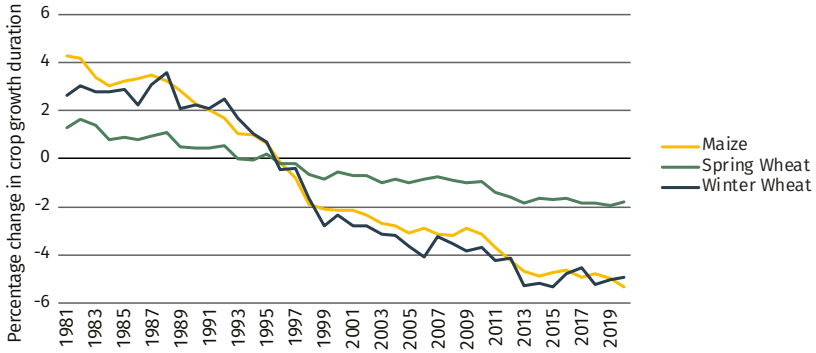
About 60% of days could be 'hot days' by the end-of-century.

Total annual precipitation could decrease by about 30% by the end-of-century.

Drought could increase by the end-of-century.

EXPOSURES

FIGURE 7: Percentage change in crop growth duration in oPt in 1981–2020, relative to the 1981–2010 average, expressed as the running mean over 11 years (5 years before and 5 years after) *(6,7)*



Reliable food resources are essential to good health. Climate change significantly increases exposure to changes in the safety and sustainability of food systems, directly through its effects on agriculture and fisheries and indirectly by contributing to underlying risk factors such as water insecurity, dependency on imported foods, urbanization and migration, and health service disruption.

EXAMPLE VULNERABILITY FACTORS[b]

Age (e.g. the elderly and children)

Biological factors and health status (e.g. pregnant women)

Environmental factors (e.g. loss of biodiversity)

Gender and equity

Socioeconomic factors

HEALTH OUTCOMES[c]

About 81% of agricultural land in oPt is rainfed and 19% irrigated; the quantity and distribution of rainfall is therefore hugely important *(8)*. The food processing industry also relies on locally produced agricultural products for 50% of the raw materials used; hence, a reduction in domestic yields due to increased temperatures and reduced water availability could significantly affect the sector. oPt is also vulnerable to shortages or increases in the prices of imported foods and raw materials, which may aggravate food insecurity *(9)*. Food insecurity is already a significant problem in oPt, with around 1.6 million people being food insecure. The lack of reliable access to nutritious food has resulted in around 50% of the population having very low levels of essential vitamins and minerals in their diets *(10)*. Climate change will likely exacerbate these existing challenges. Indeed, both domestic and imported food costs could increase in the future, as climate change threatens the productivity of agricultural land *(2)*.

[a] For details see "Current and future climate hazards".

[b] These vulnerability factors are not comprehensive but rather examples of relevant vulnerability factors. Please see the WHO Quality Criteria for Health National Adaptation Plans for more details: https://www.who.int/publications/i/item/quality-criteria-health-national-adaptation-plans.

[c] See "National health response: health system capacity and adaptation" for the national response to food safety and security.

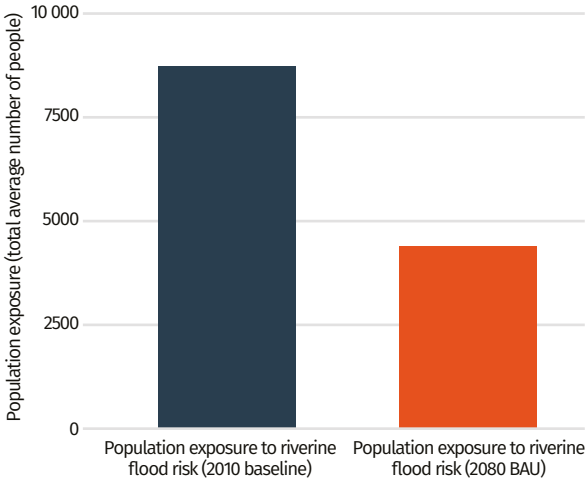
WATER QUANTITY AND QUALITY

CLIMATE HAZARDS[a]

- Up to 4.4°C mean annual temperature rise by the end-of-century.
- Total annual precipitation could decrease by about 30% by the end-of-century.
- Annual rainfall from very wet days could increase very slightly by the end-of-century.
- Drought could increase by the end-of-century.

EXPOSURES

FIGURE 8: Change in population exposure to riverine flooding in oPt from 2010 (baseline) to 2080 (under a BAU scenario)[b] *(11)*



769 000

rural inhabitants living in rainfed areas with high drought frequency OR irrigated areas with high water stress *(12)*

1.9 million

urban inhabitants living in rainfed areas with high drought frequency OR irrigated areas with high water stress *(12)*

Climate change increases the intensity and frequency of extreme weather events including drought and floods. Rising sea levels can lead to storm surges, coastal erosion, saltwater intrusion of groundwater aquifers, and ecosystem disruption. These events can lead to population displacement and affect water and sanitation infrastructure and services, contaminate water with faecal bacteria (e.g. *E. coli*, salmonella) from run-off or sewer overflow. Increasing temperatures and precipitation can also lead to water contaminated with Vibrio bacteria or algae blooms.

EXAMPLE VULNERABILITY FACTORS[c]

- Access to clean and safe water and sanitation services
- People living near flood and drought zones
- Socioeconomic factors
- Gender and equity

[a] For details see "Current and future climate hazards".

[b] This analysis, conducted by Aqueduct, shows projections for changing population exposure to riverine and coastal flood risk under a BAU scenario, which reflects RCP8.5 and SSP2. SSP2 is the socioeconomic pathway representing "middle of the road", whereby global social, economic and technological trends do not shift significantly from historical patterns.

[c] These vulnerability factors are not comprehensive but rather examples of relevant vulnerability factors. Please see the WHO Quality Criteria for Health National Adaptation Plans for more details: https://www.who.int/publications/i/item/quality-criteria-health-national-adaptation-plans.

HEALTH RISKS[a]

oPt is water scarce and particularly vulnerable to the effects of climate change. oPt already has one of the lowest per capita water availability in the world. Groundwater is the main source of freshwater and about half of extracted groundwater is used for agriculture *(9).* However, this has contributed to water demand exceeding supply and this gap is expected to worsen in the future. For example, excessive abstraction of groundwater resources has made many groundwater resources undrinkable; as a result of abstraction rates being around three times greater than recharge rates, saltwater intrusion of the groundwater has occurred *(13).* Consequently, a high percentage of wells fail to meet salinity standards *(14).* Climate change is expected to worsen these water security challenges. The further reduction in future water availability will likely lead to major challenges in meeting domestic water needs *(15).*

[a] See "National health response: health system capacity and adaptation" for the national response to water quantity and quality.

HEALTH RISKS DUE TO AIR POLLUTION

Many of the drivers of climate change, such as inefficient and polluting forms of energy and transport systems, also contribute to air pollution. Air pollution is now one of the largest global health risks, causing approximately seven million deaths every year. There is an important opportunity to promote policies that both protect the climate at a global level, and also have large and immediate health benefits at a local level.

EXPOSURES

Neither city nor national level data is currently available for $PM_{2.5}$[a] for oPt. The WHO guideline for safe levels of $PM_{2.5}$ is 5 µg/m^3 *(16).* oPt also has national standards for ambient air pollution.

EXAMPLE VULNERABILITY FACTORS[b]

- Age (e.g. the elderly and children)
- Biological factors and health status (e.g. pre-existing conditions)
- Gender and equity
- Geographical factors (e.g. rural/urban areas)
- Socioeconomic factors (e.g. poverty)

HEALTH RISKS[c]

Ambient air pollution can have direct and sometimes severe consequences for health. Fine particles, which penetrate deep into the respiratory tract, subsequently increase mortality from respiratory infections, lung cancer and cardiovascular disease.

1031

deaths from ambient air pollution in oPt in 2016 *(17)*

Sand and dust storms have severe impacts on human health, by increasing particulate matter and carrying harmful substances and pathogens, all of which contribute to air pollution and associated respiratory problems. Furthermore, sand and dust storms increase desertification, drought and soil salinity, as well as decreasing water resources. This has severe implications for people's livelihoods as well as their health, with agricultural land being particularly badly affected. Indeed, farmland can be made unusable by sand and dust storms, with such events sometimes stripping away the fertile layer of soil agriculture is dependent upon. There has been an observed increase in the frequency and severity of sand and dust storms globally. This is expected to worsen with climate change and be further exacerbated by drought, land degradation, and unsustainable land and water management *(18).*

[a] $PM_{2.5}$ is atmospheric particulate matter (PM) with a diameter of <2.5 µm.

[b] These vulnerability factors are not comprehensive but rather examples of relevant vulnerability factors. Please see the WHO Quality Criteria for Health National Adaptation Plans for more details: https://www.who.int/publications/i/item/quality-criteria-health-national-adaptation-plans.

[c] See "National health response: health system capacity and adaptation" for the national response to air pollution.

HEALTH CO-BENEFITS FROM CLIMATE CHANGE MITIGATION

Health co-benefits are local, national and international measures with the potential to simultaneously yield large, immediate public health benefits and reduce greenhouse gas emissions.

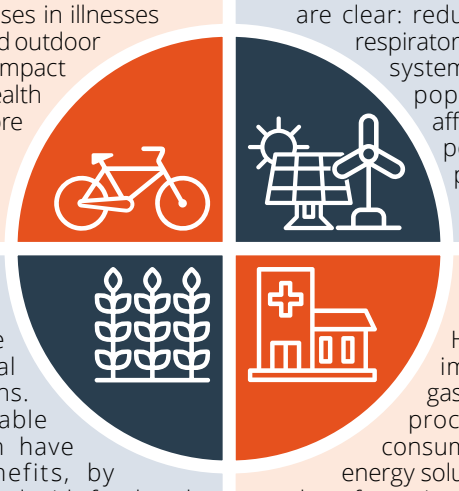
GLOBAL EXAMPLES

TRANSPORT

A shift towards active transportation and sustainable public transport systems could see reductions in greenhouse gas emissions; decreases in illnesses related to physical inactivity, reduced outdoor air pollution and noise exposure. Compact urban planning can also improve health equity by making urban services more accessible to the elderly and poor.

ENERGY

The health benefits of transitioning from polluting fuels, such as coal, to lower carbon sources and renewables are clear: reduced rates of cardiovascular and respiratory diseases; cost-savings for health systems; improved health equity where populations are disproportionately affected by household or ambient air pollution; and improved economic productivity from a healthier and more productive workforce.



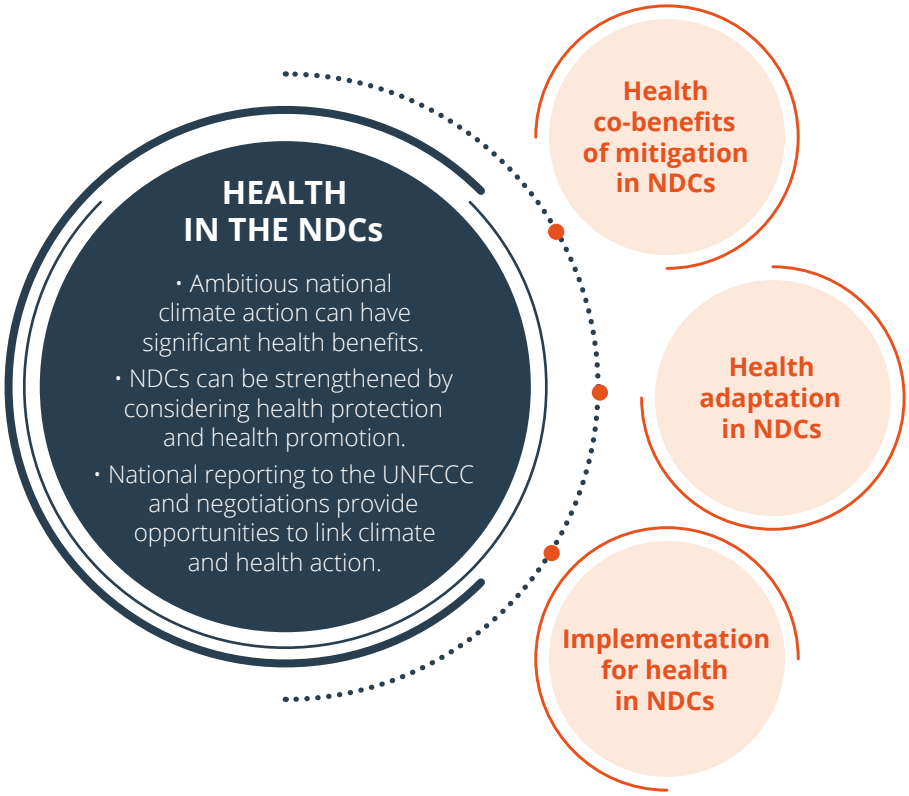
FOOD AND AGRICULTURE

Food systems emissions constitute a significant proportion of total global greenhouse gas emissions. Interventions to build sustainable and secure food systems can have significant public health benefits, by addressing malnutrition associated with food and nutrition insecurity while reducing diet-related noncommunicable diseases (NCDs).

HEALTH CARE SYSTEMS

Health care activities are an important source of greenhouse gas emissions. Major sources include procurement and inefficient energy consumption. Low-carbon and efficient energy solutions can lower the health sector's carbon footprint while improving the quality and reliability of energy services in many settings.

HEALTH IN THE NATIONALLY DETERMINED CONTRIBUTION (NDC)



Total 2011 emissions

3.26 Mt CO_2 equivalent *(19)*

NDC target

Reduce greenhouse gas emissions by 26.6% (independence) or 17.5% (status quo) by 2040, compared with the BAU scenario *(2)*

oPt's NDC highlights health adaptation needs, including water and food security, increased risk from various diseases (for example vector-borne, waterborne and foodborne dieseases), and heat stress and dehydration *(2)*. Two conditional health NDC actions are identified:

1. Increase awareness and capacities for disease prevention.
2. Develop safety and monitoring systems for water, food and sanitation *(2)*.

To support the implementation and delivery of these two health actions, more detailed plans for increasing awareness and capacities for diseases prevention and developing safety and monitoring systems for water, food and sanitation have been published *(20,21)*.

NATIONAL HEALTH RESPONSE: HEALTH SYSTEM CAPACITY AND ADAPTATION

The following section measures progress in the health sector in responding to climate threats based on country reported data collected in the WHO Health and Climate Change Global Survey *(22)*.

GOVERNANCE AND LEADERSHIP

National planning for health and climate change

Has a national health and climate change strategy or plan been developed?[a] *Title:* National Adaptation Plan to Climate Change *Year:* 2016	● [b]
Content	
Are health adaptation priorities identified in the strategy/plan?	○
Are the health co-benefits of mitigation action considered in the strategy/plan?	●
Have performance indicators been identified?	●
Level of implementation of the strategy/plan	Low
Portion of estimated costs to implement the strategy/plan covered in the health budget	Partially[c]

● yes ● no ○ unknown / not applicable

Intersectoral collaboration to address climate change

Is there an agreement in place between the ministry of health and this sector which defines specific roles and responsibilities in relation to links between health and climate change policy?

Sector[d]	**Agreement in place**
Transportation	●
Electricity generation	○
Household energy	○
Agriculture	○
Social services	○
Water, sanitation and waste-water management	●

● yes ● no ○ unknown / not applicable

[a] In this context, a national strategy or plan is a broad term that includes national health and climate strategies as well as the health component of national adaptation plans (HNAPs).

[b] Not a comprehensive strategy as it is limited to adaptation measures. A new project on developing an NDC Implementation Plan for five sectors, including health, will be developed.

[c] International financial support is needed.

[b] Specific roles and responsibilities between the national health authority and the sector indicated are defined in the agreement.

EVIDENCE AND IMPLEMENTATION

Vulnerability and adaptation assessment for health

Has an assessment of health vulnerability and impacts of climate change been conducted at the national level? ●*

Title: N/A

Year: N/A

Have the results of the assessment been used for policy prioritization or the allocation of human and financial resources to address the health risks of climate change?

● yes ● no ○ unknown / not applicable

* Under development

Integrated risk monitoring and early warning

Climate-sensitive diseases and health outcomes	Health surveillance system exists[a]	Health surveillance system includes meteorological information[b]	Climate-informed health early warning system (EWS) in place
Thermal stress (e.g. heat waves)	○	○	○
Vector-borne diseases	○	○	○
Foodborne diseases	○	○	○
Waterborne diseases	○	○	○
Nutrition (e.g. malnutrition associated with extreme climatic events)	○	○	○
Injuries (e.g. physical injuries or drowning in extreme weather events)	○	○	○
Mental health and well-being	○	○	○
Airborne and respiratory diseases	○	○	○

● yes ● no ○ unknown / not applicable

[a] A positive response indicates that the surveillance system is in place, it will identify changing health risks or impacts AND it will trigger early action.

[b] Meteorological information refers to either short-term weather information, seasonal climate information or long-term climate information.

Emergency preparedness

Climate hazard	Early warning system in place	Health sector response plan in place	Health sector response plan includes meteorological information
Heat waves	●	●	●
Storms (e.g. hurricanes, monsoons, typhoons)	●	●	●
Flooding	●	●	●
Drought	●	●	●
Air quality (e.g. particulate matter, ozone levels)	●	●	●
Sand/dust storms	●	●	●

● yes ● no ○ unknown / not applicable

CAPACITY, INFRASTRUCTURE AND SUSTAINABILITY

Human resource capacity

International Health Regulations (IHR) Monitoring Framework Human Resources Core Capacity *(23)*	N/A
Does your human resource capacity, as measured through the IHR, adequately consider the human resource requirements to respond to climate-related events?	●
Is there a national curriculum developed to train health personnel on the health impacts of climate change?	●

● yes ● no ○ unknown / not applicable

Health care facilities, infrastructure and technology

Has there been an assessment of the climate resilience of any public health care facilities?	Limited
Have measures been taken to increase the climate resilience of health infrastructure and technology?	Partially
Is there a national initiative/programme in place to promote the use of low-carbon, energy-efficient, sustainable technologies in the health sector?	●

● yes ● no ○ unknown / not applicable

OPPORTUNITIES FOR ACTION

1. STRENGTHEN IMPLEMENTATION OF oPt's NATIONAL HEALTH AND CLIMATE CHANGE PLAN/STRATEGY

Implementation of the health and climate change plan/strategy in oPt is reported to be low. Assess barriers to implementation of the plan/strategy (e.g. governance, evidence, monitoring and evaluation, finance). Implementation can be supported by exploring additional opportunities to access funds for health and climate change priorities (e.g. GCF readiness proposal). See "WHO resources for action".

2. STRENGTHEN MULTISECTORAL COLLABORATION ON HEALTH AND CLIMATE CHANGE

There are no multisectoral agreements in place on climate change and health. Enhance collaboration between health and health-determining sectors with agreements on climate change and health action (e.g. with transport, energy, water and sanitation, national meteorological and hydrological services sectors, etc.). Promote climate mitigation and adaptation policies that protect and promote health and strengthen health systems.

3. CONDUCT A CLIMATE CHANGE AND HEALTH VULNERABILITY AND ADAPTATION ASSESSMENT

oPt has not conducted a climate change and health vulnerability and adaptation assessment. Assess oPt's vulnerability to climate-related health risks. Information gathered through iterative climate change and health vulnerability and adaptation assessments can be used to inform the development of health adaptation policies and plans as well as national climate change reporting mechanisms (e.g. Nationally Determined Contributions [NDCs], National Communications [NCs], National Adaptation Plans [NAPs]). See "WHO resources for action". Capacity building will be essential to develop a robust database, as well as institutional (governmental and non-governmental) integration to obtain required resources.

4. BUILD CLIMATE-RESILIENT AND ENVIRONMENTALLY SUSTAINABLE HEALTH CARE FACILITIES

Measures can be taken to prevent the potentially devastating impacts of climate change on health care facilities and health service provision while decreasing the climate and environmental footprint of health care facilities. A commitment towards climate-resilient, environmentally sustainable health care facilities can improve system stability, promote a healing environment and mitigate climate change impacts.

WHO RESOURCES FOR ACTION

- **Operational framework for building climate-resilient health systems**
  https://www.who.int/publications/i/item/operational-framework-for-building-climate-resilient-health-systems
- **WHO guidance to protect health from climate change through health adaptation planning**
  https://www.who.int/publications/i/item/who-guidance-to-protect-health-from-climate-change-through-health-adaptation-planning
- **Quality Criteria for Health National Adaptation Plans**
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- **Protecting health from climate change: vulnerability and adaptation assessment**
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- **Integrated risk surveillance and health early warning systems**
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- **WHO guidance for climate-resilient and environmentally sustainable health care facilities**
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- **Heat early warning systems guidance**
  https://www.who.int/publications/i/item/heatwaves-and-health-guidance-on-warning-system-development
- **Climate services for health fundamentals and case studies**
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