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Swiss Confederation

# Adaptation to climate change

Pilot programme phase II

The climate is changing and Switzerland needs to adapt to the impacts. The Swiss Confederation has drawn up a corresponding strategy. It aims to minimise risks and seize opportunities. The adaptation strategy also encompasses an extensive pilot programme. Innovative projects specifically help cantons, regions and municipalities to adapt to climate change.



Examination of slope stability in the Valais Alps.

## It is getting warmer

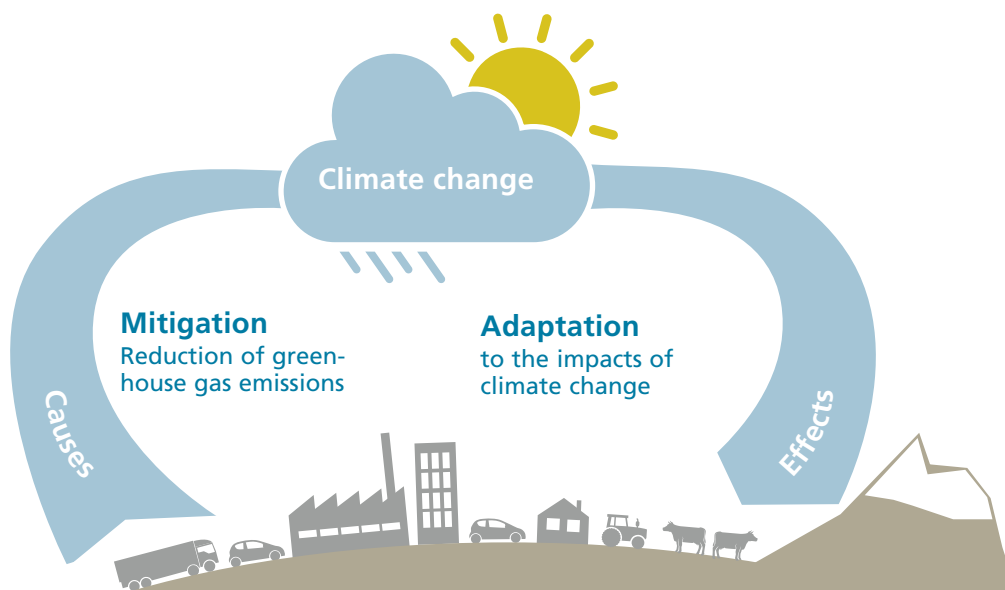
Switzerland is particularly affected by global warming. Since measurements began in 1864, the average temperature in our country has already increased by 2 degrees. If no effective measures are taken on a global level, climate scientists expect temperatures to rise by another few degrees. The consequences: more very hot days, drier summers, winters with little snow, and more intense rainfall.

## Reducing greenhouse gases

The most important measure in fighting climate change is the consequent reduction of global greenhouse gas emissions. Along with 190 other countries, Switzerland has committed to do so by ratifying the Paris Agreement. In the CO<sub>2</sub> Act, the Swiss Confederation has defined various instruments to reduce greenhouse gas emissions in Switzerland.

## Being prepared

Even if we successfully reduce global greenhouse gas emissions, the climate will continue to change in the decades to come. We therefore have to adapt to new conditions. To this end, the Federal Council has developed a strategy and action plan for adaptation to climate change. Its purpose is that authorities, the economy and the population will accept the challenge and tackle it together. The Confederation's mission is to provide the basis for the necessary measures and to link and coordinate the individual players and their activities.



The Swiss climate policy encompasses the two pillars of mitigation and adaptation.



Investigation into the spread of pests in Geneva.

## Promotion of exemplary projects

The adaptation strategy of the Confederation also incorporates the “adaptation to climate change” pilot programme. It supports exemplary, innovative plans by cantons, regions, cities and municipalities and shows how Switzerland can concretely adapt to the changing climate. The projects serve to minimise the climate risks on the ground, to increase the capacity for adaptation and to seize opportunities.

## Finding joint solutions

The pilot programme is intended to link the different players and to promote collaboration on all levels. Moreover, it also strives to find solutions in which several organisations, expert fields and political, economic and social structures participate. This creates feasible solutions. The implementation of the projects not only involves public institutions, but also companies from private industry.

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The first phase of the programme shows that the pilot projects result in diverse and feasible findings and improve the performance of Switzerland as regards adaptation. Four examples:

### Valais

The city of Sion implemented a variety of urban development measures to reduce the heat island effect and simultaneously improve quality of life. Attractive green spaces and the handling of water play a central role in this process. This holistic approach made it possible to not only reach players from the author-

ities, architecture and planning, but also the population, schools and private investors.

### Graubünden

A special “climate toolbox” was created for the canton of Graubünden. This toolbox and facilitation kit contains numerous tools that help players in the Surselva region to get involved in concrete adaptation measures. The materials comprise a basic report, a poster on the dangers and effects, risk-opportunity cards and a collection of measures.

## The participating Federal Offices

- Federal Office for the Environment (management)
  - Federal Office for Civil Protection FOCP
  - Federal Office of Energy FOE
  - Federal Office of Public Health FOPH
  - Federal Office for Agriculture FOAG
  - Federal Food Safety and Veterinary Office FSVO
  - Federal Office for Meteorology and Climatology MeteoSwiss
  - Federal Office for Spatial Development ARE
  - Federal Roads Office FEDRO
  - Federal Office for Housing FOH
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## Further information

Detailed project descriptions, results of finished projects and current background information can be found at:  
[www.nccs.admin.ch/pilotprogramme](http://www.nccs.admin.ch/pilotprogramme)

## Second phase underway

During the first phase of the pilot programme (2013 to 2017), 31 projects were implemented throughout Switzerland. Results can be found at [www.nccs.admin.ch/pilot-programme](http://www.nccs.admin.ch/pilot-programme). The second programme phase started in 2018, with another 50 projects addressing 6 topics (see reverse). The results will be available at the end of 2022.

## Broad support

Ten Federal Offices participate in the pilot programme (see above). It is managed by the Federal Office for the Environment FOEN. The costs for the second phase of the pilot programme have been estimated at approximately 9.4 million francs. The expenses for the projects are jointly covered by the participating Federal Offices, as well as the cantons, cities and municipalities.

### Basel

The canton of Basel-Landschaft focused on the economical use of surface water in times of low water levels, increasing water temperatures and high water demand. The experts drew up 20 recommendations, in particular for the drainage of rainwater and the revitalisation of streams.




### Geneva

Using the example of the southern green shield bug, the Haute école du paysage, de l'ingénierie et de l'architecture de Genève

(hepia) developed a method that can detect the appearance of hitherto unknown pests in Switzerland. The researchers also drew up recommendations as to how to stem the spread of pests with the selection of agricultural crops.

## Topics and projects

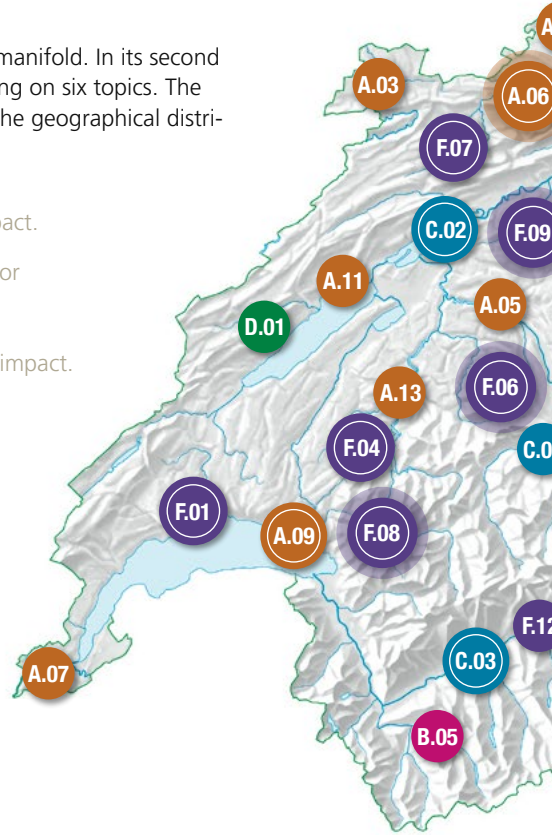
The effects of climate change in Switzerland are manifold. In its second programme phase, the pilot programme is focusing on six topics. The adjacent map gives an approximate overview of the geographical distribution of the projects.

-  Project with a predominantly local impact.
-  Project with a predominantly regional or cantonal impact.
-  Project with a predominantly national impact.

### Increase in heat stress

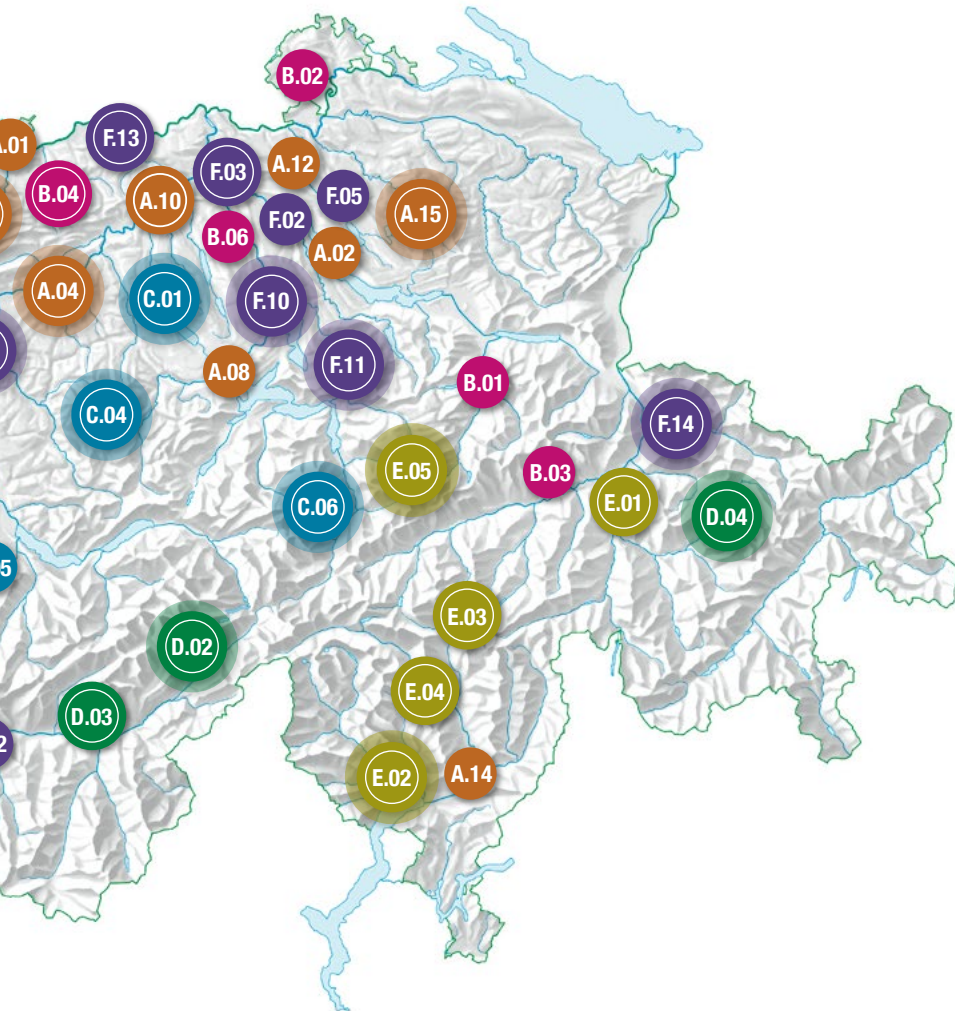
Current climate scenarios show more than an increase in average temperatures. Maximum temperatures will increase even more dramatically, in particular during the summer and in conurbations. High temperatures and more frequent heat events have far-reaching consequences for humans, animals and the environment. Critical situations arise in particular during more intense heat waves as these put a strain on human health and can be life-threatening for elderly and sick people, persons in need of care, and also small children and pregnant women.

- A.01 Construction materials for cities experiencing climate change
- A.02 Optimising urban buildings
- A.03 Trees and nature in the city
- A.04 Heat stress for grazing cows
- A.05 Cool road surfaces
- A.06 Heat and health
- A.07 Cool City
- A.08 Climate-resilient urban area of Lucerne
- A.09 "Schools defy the heat"
- A.10 Aargau heat-adapted urban development
- A.11 Serrières – breathing new life into a district
- A.12 Climate-adapted site development
- A.13 Heat islands in the city of Fribourg
- A.14 Guidelines for construction in Southern Switzerland
- A.15 Current climate data for building designers



### Increase in summer drought (Focus: agriculture)

With an increase in temperatures, water reserves that are currently stored as snow and glacial ice are disappearing. At the same time, longer periods without rain can be expected. This development is contrasted by a sharp increase in water demand on hot days. Although Switzerland has large reserves, water can become scarce on a local level in the summer. These changes have an impact on ecosystems and all water users, and competitive situations can arise. This mainly concerns agriculture, which is dependent on a sufficient supply for its cultures.



- B.01 Spring water supply in the canton of Glarus
- B.02 Groundwater for agriculture
- B.03 Multipurpose-storage to combat summer drought
- B.04 Water storage for irrigation
- B.05 Irrigation in mountain areas
- B.06 Adaptation as a chance for agriculture

### Increase in flood risk, decrease in slope stability and more frequent land movements

Climate change causes more frequent and more intensive floods in Switzerland. Moreover, in the Alps, melting glaciers and thawing permafrost may compromise the stability

of steep slopes. This results in more landslides, rockfalls, rockslides and debris flows. At medium and low altitudes, heavy rainfall and rising snowline increase the danger of erosion and flowslides. This endangers settlements, transport routes, infrastructure and agricultural land.

- C.01 Protecting buildings from floods
- C.02 Flood assessment along the Aare river
- C.03 Dangers from thawing rock walls
- C.04 Climate-adapted population protection
- C.05 Joint strategies against flowslides
- C.06 Joint risk assessment of natural hazards

## Changes in habitats, species composition, and the landscape (Focus: agriculture and forestry)

Changes in temperature and rainfall affect the habitats of animal and plant species. This results in local changes in species composition. These changes are likely to have a negative impact on ecosystem services (e.g. soil fertility, protection from erosion, carbon storage), at least in the beginning. Positive effects are only to be expected in the long term, if at all. The changes mainly concern forestry and agriculture, where they create new conditions for cultivation and production.

- D.01 Viticulture in the canton of Neuchâtel
- D.02 Soil data covering the entire mountain area
- D.03 Climate-adapted tree species in protection forests
- D.04 Protected areas experiencing climate change

## Spreading of pests, diseases and alien species

Climate change promotes the spread of pests and invasive, alien species. These can cause extensive damages in agriculture and forestry. However, human and animal health can also be affected by the spread of new pathogens and vectors.

- E.01 Modelling of invasive species
- E.02 Improved risk scenarios for the tiger mosquito
- E.03 Ink disease in the sweet chestnut
- E.04 Spread of the Chinese windmill palm
- E.05 Spread of forest pests

## Raising of awareness, information and coordination

People need to be informed about the consequences of climate change so that they can adapt in a targeted way. Many municipalities, regions and cantons are only just starting to develop possible solutions and to create networks. The necessary knowledge is often dispersed and does not address the groups concerned. Adaptation to climate change will only succeed if all players collaborate across technical and organisational borders.

- F.01 Clim-Expo
- F.02 Climate adaptation and inward urban development network
- F.03 Climate oases in municipalities
- F.04 Colibri events
- F.05 Foreign trade: dialogue with industry
- F.06 Climate knowledge for forest practitioners
- F.07 Best practice guidelines on spring protection
- F.08 Exchange between cantons and municipalities
- F.09 Fish-friendly river engineering
- F.10 Adapted management of city trees
- F.11 Safe hiking 2040
- F.12 Art, greening, climate
- F.13 Measures to protect fish during heat events
- F.14 Short film about climate scenarios

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