



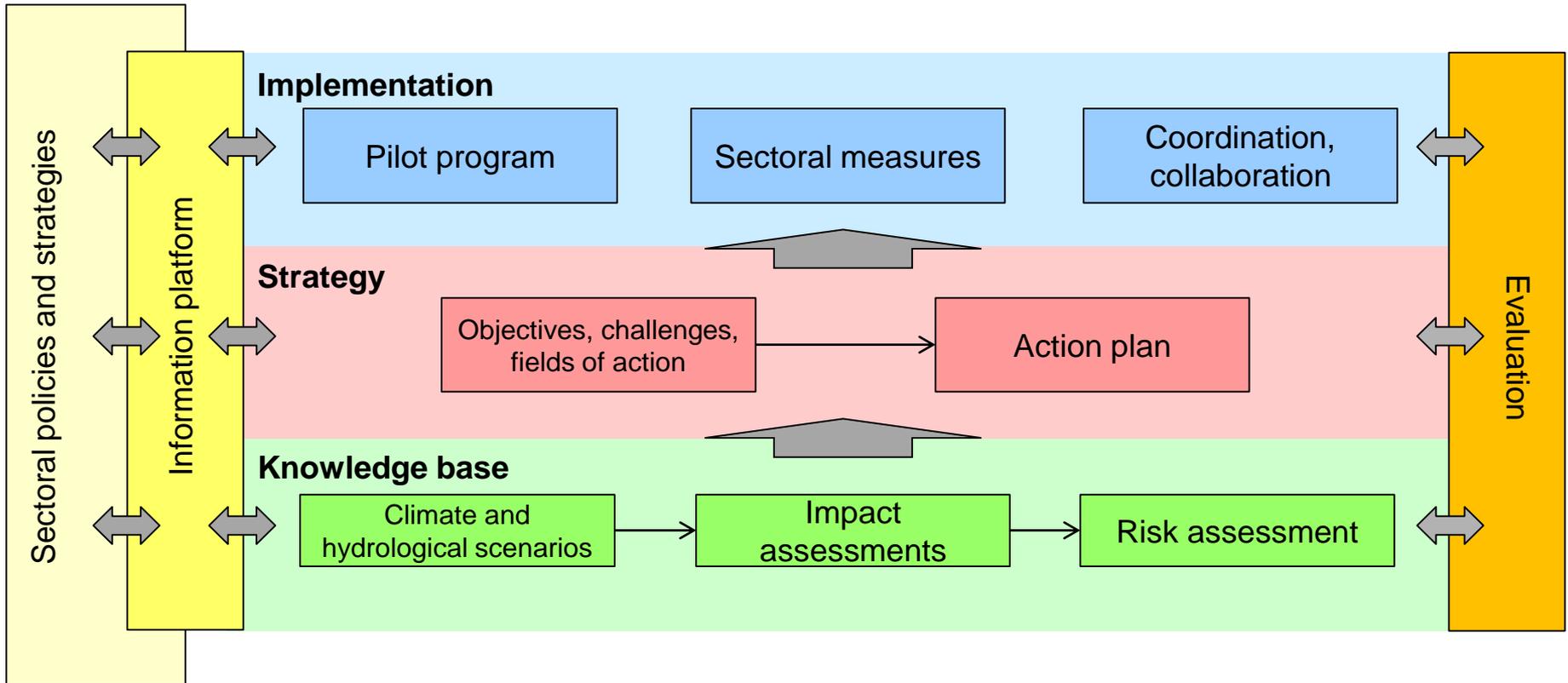
# Adaptation to climate change in Switzerland The Federal Council's Strategy

Kick-off workshop Hydro-CH2018, Olten, 19 May 2016

R. Hohmann, P. Köllner, T. Probst, C. Gross, M. Zoller

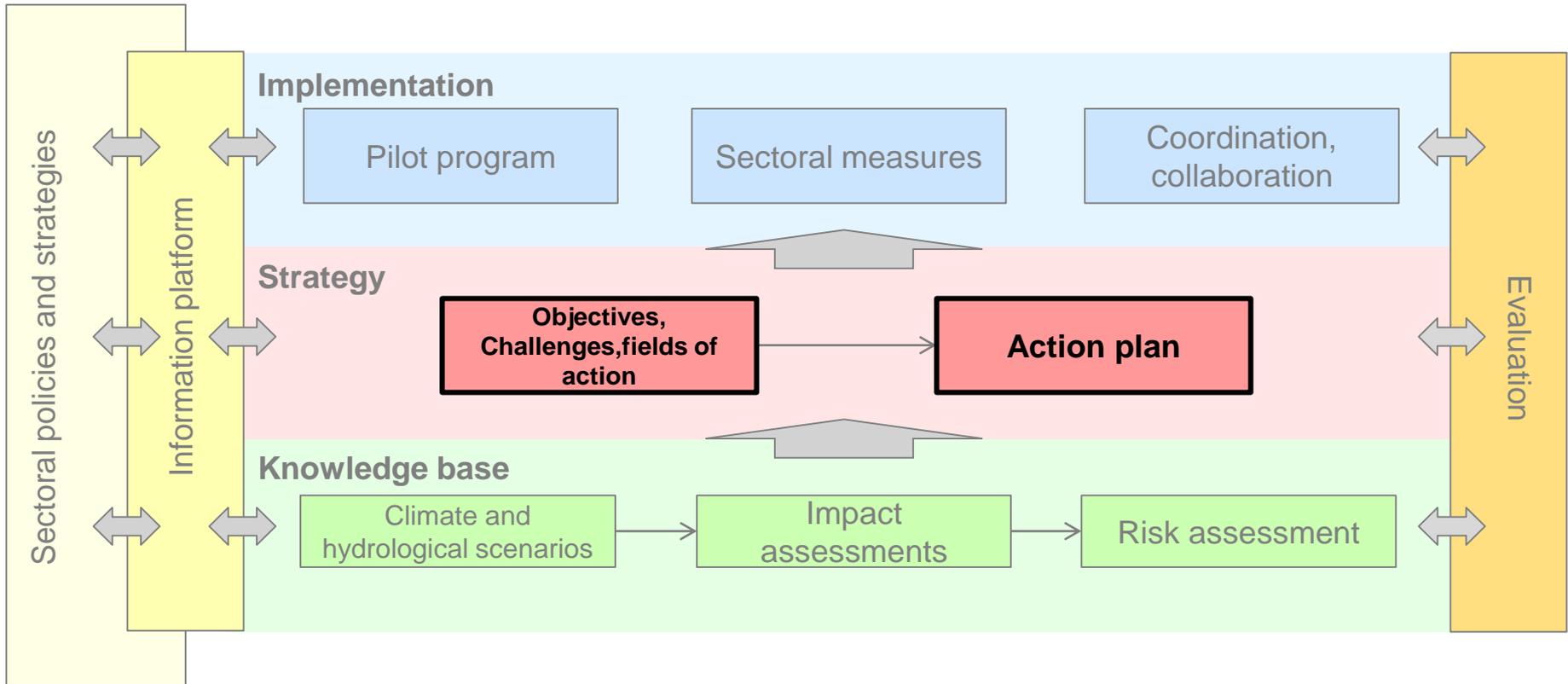


# Adaptation activities in Switzerland





# Adaptation activities in Switzerland





# Legal basis for adaptation in Switzerland

## Revised CO<sub>2</sub> Act (1.1.2013)

### Art. 8 Coordination of Adaptation Measures

- 1 The federal government coordinates measures to prevent and cope with damages to people and assets caused by the increased greenhouse gas concentrations in the atmosphere.
- 2 It ensures that basic information needed for adaptation is made available.



## Adaptation to climate change in Switzerland

Goals, challenges and fields of action

First part of the Federal Council's strategy  
Adopted on 2 March 2012

 Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra  
Swiss Confederation

*Adopted on 2 March 2012*



## Adaptation to climate change in Switzerland

Action Plan

Second part of the Federal  
Council's strategy

 Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra  
Swiss Confederation

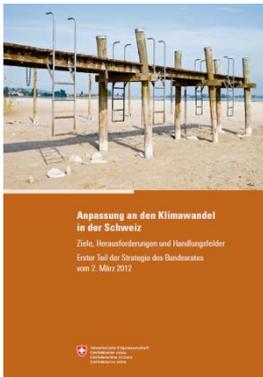
*Adopted on 9 April 2014*



# Intergovernmental Committee on Climate (IDA Klima)

- Environment
- Energy
- Spatial Development
- Agriculture
- Health
- Animal Health
- Economy
- Civil Protection
- Meteorology
- Finance





## Objectives and principles

## Objectives

- Seize the **opportunities** arising from climate change
- Minimise the climate change **risks**: protect population, public assets and natural life support systems
- Improve the **adaptive capacity** of society, economy and environment

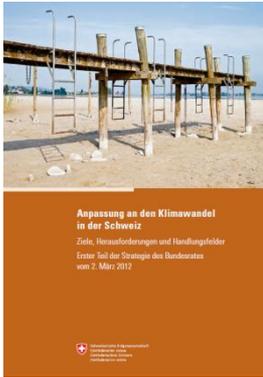


Objectives and  
principles

9 sectoral  
sub-strategies  
- fields of action  
- sectoral goals

## Sectors/policy fields

- Water management
- Natural hazards prevention
- Agriculture
- Forestry
- Energy (consumption and production)
- Tourism
- Health
- Biodiversity management
- Spatial development
- Monitoring and early detection
- Reducing uncertainty/enhancing knowledge base
- Raising awareness
- Funding

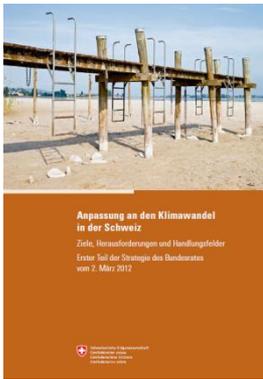


Objectives and  
principles

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## Sectors/policy fields

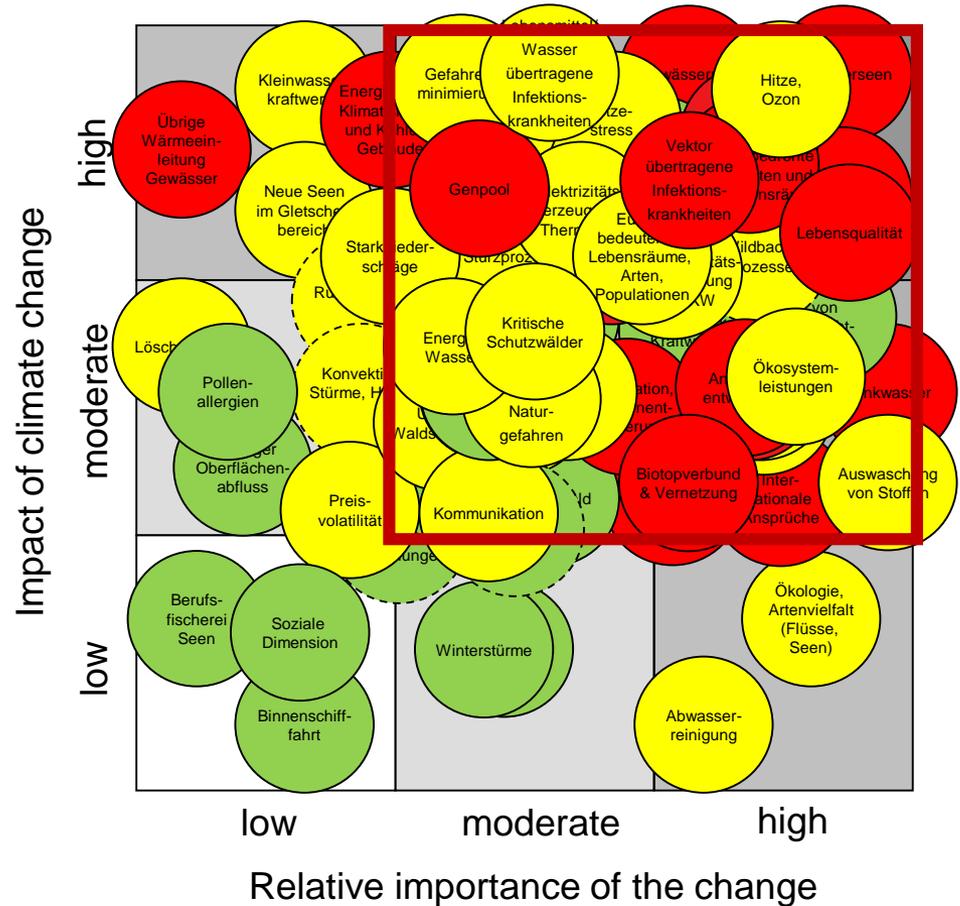
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Objectives and principles

9 sectoral sub-strategies  
- fields of action  
- sectoral goals

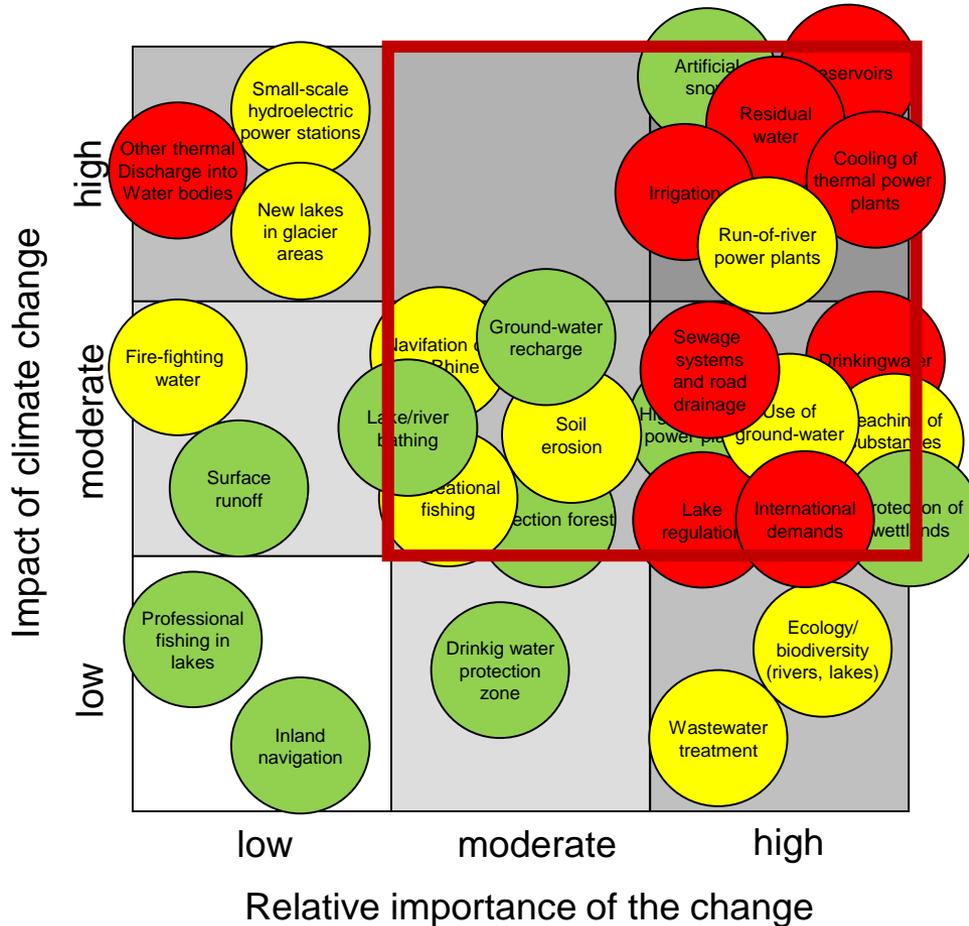
9 sectors  
48 fields of action  
50 interfaces



Need for action: ● low ● moderate ● high



# Water management

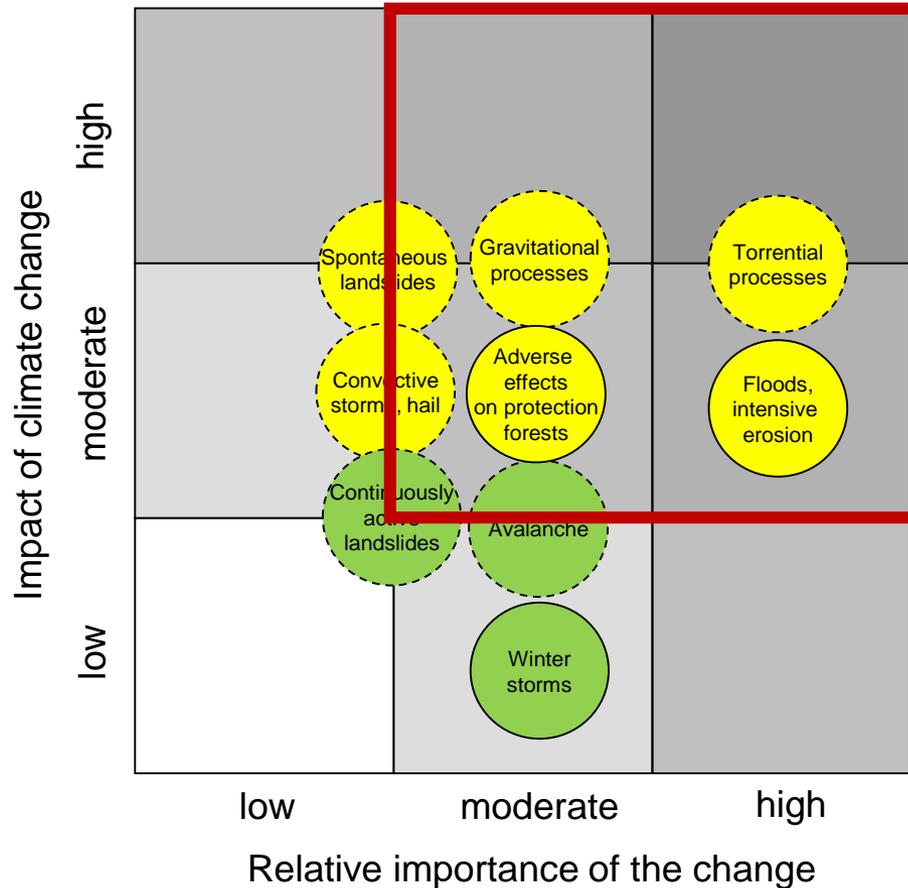


- W1 Drinking water
- W2 Reservoirs
- W3 Cooling of thermal power plants
- W4 Irrigation
- W5 Residual flow
- W6 Sewage systems and road drainage
- W7 Lake regulation
- W8 International demands
- W9 Use of groundwater
- W10 Leaching of substances
- W11 Soil erosion
- W12 Run-of-river power plants
- W13 Recreational fishing
- W14 Navigation (Rhine)

Need for action: ● low ● moderate ● high



# Natural hazards management (Alpine region)



**N1 Floods**

**N2 Torrential processes**

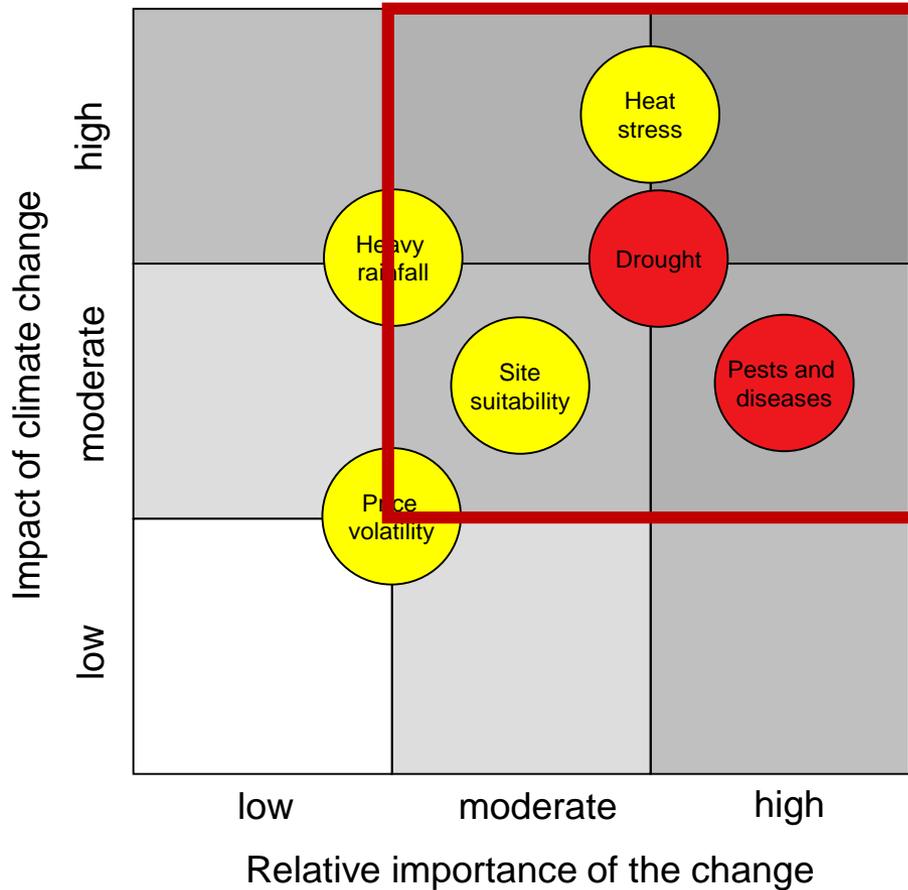
N3 Gravitational processes

N4 Protection forest

Need for action: ● low ● moderate ● high



# Agriculture

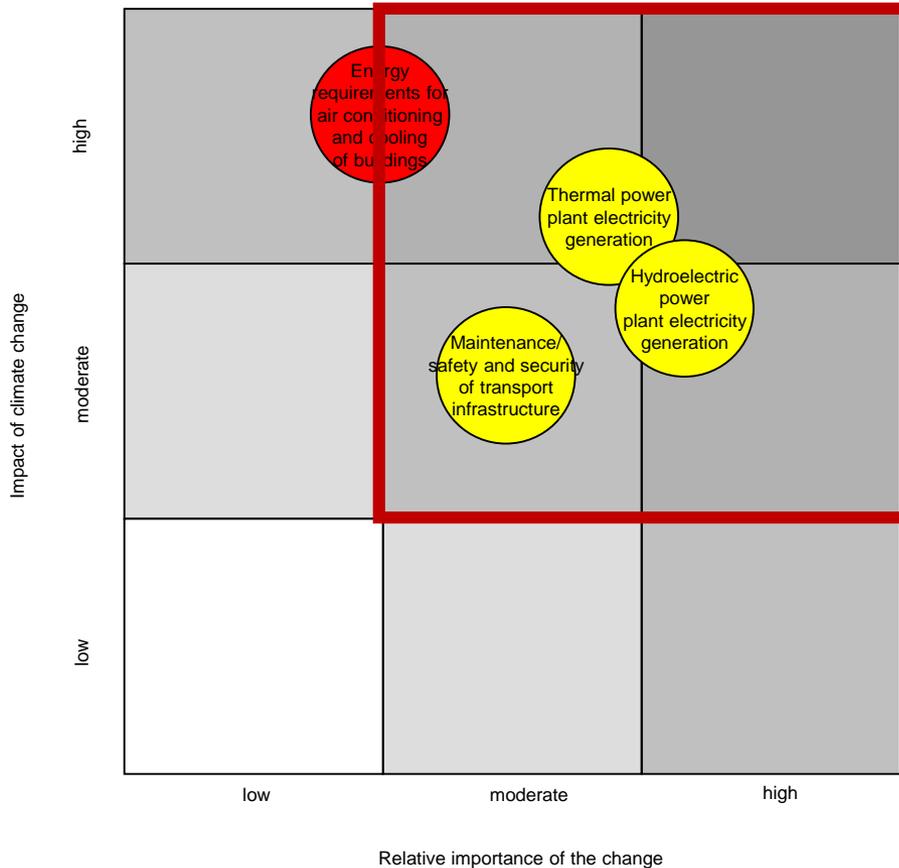


- A1 Site suitability
- A2 Heavy rainfall
- A3 Drought**
- A4 Heat stress
- A5 Pests and diseases
- A6 Price volatility

Need for action: ● low ● moderate ● high



# Energy



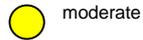
E1 Energy demand for air conditioning and cooling of buildings

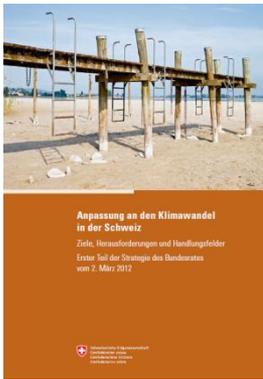
**E2 Generation of electricity from hydropower**

E3 Generation of electricity from thermal power plants

E4 Maintenance and safety of transport infrastructure

Need for action:





Adaptation goals and principles

9 sectoral sub-strategies  
- fields of action  
- sectoral goals

12 cross-sectoral challenges

- Greater heat stress in agglomerations and cities (2.1.1)
- Increasing levels of summer drought (2.1.2)
- Greater risk of flooding (2.1.3)
- Decreasing slope stability and more frequent mass wasting (2.1.4)
- Rising snowline (2.1.5)
- Impaired water, soil and air quality (2.1.6)
- Change in habitats, species composition and landscapes (2.1.7)
- Spread of harmful organisms, disease and alien species (2.1.8)
- Monitoring and early detection (2.2.1)
- Uncertainties and knowledge gaps (2.2.2)
- Raising awareness, information and coordination (2.2.3)
- Resource requirements and funding (2.2.4)

	Water management (4.1)	Natural hazards management (4.2)	Agriculture (4.3)	Forestry (4.4)	Energy (4.5)	Tourism (4.6)	Biodiversity management (4.7)	Health (4.8)	Spatial development (4.9)
Greater heat stress in agglomerations and cities (2.1.1)									
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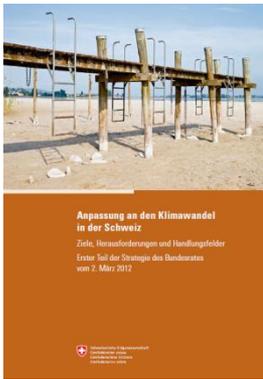
Adaptation goals  
and principles

9 sectoral  
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12 cross-sectoral  
challenges

f) Decrease in water, soil and air quality



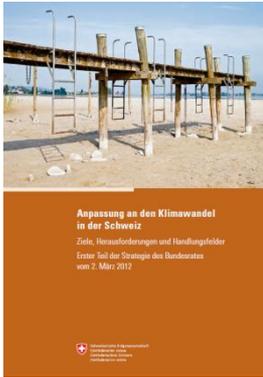


Adaptation goals  
and principles

9 sectoral  
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12 cross-sectoral  
challenges

- i) Monitoring and early detection
- j) Reducing uncertainties and closing the knowledge gap
- k) Raising awareness and improving information and coordination
- l) Resource requirements and funding



Adaptation goals  
and principles

9 sectoral  
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12 cross-sectoral  
challenges

- i) **Monitoring and early detection**
- j) **Reducing uncertainties and closing the knowledge gap**
- k) Raising awareness and improving information and coordination
- l) Resource requirements and funding



# Action plan (2<sup>nd</sup> part of Adaptation strategy)



**Adaptation to climate change  
in Switzerland**

Action Plan

Second part of the Federal  
Council's strategy



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra  
Swiss Confederation

54 adaptation measures  
addressing sectoral fields  
of action identified in the  
first part of the strategy

4 measures to improve  
cross-sectoral knowledge  
base (e.g., climate and  
hydrological scenarios,  
risk assessment)

5 measures for horizontal  
and vertical coordination  
of adaptation.



# Selected sectoral measures

## *Water management*

- w1 Planing instruments for water resources management
- w7 Assessment basis for requirements of the Waters Protection Act (WPA) due to changes in run-off and temperature regimes
- w8 Input of cooling water into lakes, rivers and groundwater
- w10 Early detection of droughts – modelling of hydrological components

## *Natural hazards management*

- n2 Knowing the existing natural hazards and associated risks
- n3 Robust and flexible design of protective measures

## *Agriculture*

- a2 Conservative use of soil and water
- a3 Knowledge bases for agriculture management adapted to ist location

## *Energy*

- e4 Anlysis of the impacts of climate change on hydroelectric power production



# Measures addressing cross-sectoral challenges

*Improving the knowledge base*

kb1 New climate scenarios

kb2 Hydrological basis and scenarios for adaptation to climate change



# Adaptation to climate change in Switzerland

Seize opportunities, minimise risks, improve adaptive capacity!

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