



capitalising climate change knowledge for adaptation in the alpine space



Climate Adaptation Policies, Governance and the Science-Policy Interface in Alpine Countries and Regions

Country Report Switzerland.

Deliverable of WP4 in the C3-Alps project

**Susanne Menzel, Jasmine, Marco Pütz
(WSL)**

May 2013

funding programme



www.c3alps.eu
info@c3alps.eu

Recommended citation Menzel, S., Truong, J. & Pütz, M. (2013): Climate Adaptation Policies, Governance and the Science-Policy Interface in Alpine Countries and Regions. Country Report Switzerland. Deliverable of WP4 in the C3-Alps project.

Organization Swiss Federal Research Institute WSL



Authors Susanne Menzel, Jasmine Truong & Marco Pütz

Contracting Body Federal Office for the Environment FOEN



Contact Thomas Probst, Federal Office for the Environment FOEN,
thomas.probst@bafu.admin.ch
0041 313243564

Delivery date 16th of May 2013

Status Final report

Distribution level Public

www.c3alps.eu



Table of contents

1 Executive Summary.....4

2 Introduction6

 2.1 Methods 6

 2.2 Description of the situation (status quo) 6

3 Characteristics of policy document.....8

4 Characteristics of the external factors 11

5 Characteristics of the policy document development process 12

6 Characteristics of the science-policy interface..... 14

 6.1 Information sources and dealing with uncertainty..... 14

 6.2 Sources of scientific information and institutions of knowledge generation..... 14

 6.3 How to produce more useful information 16

7 Impacts of CCA policy making 17

 7.1 General impacts 17

 7.2 Responsive and laggard sectors 17

8 Strengths and weaknesses 18

 8.1 The drafting process..... 18

 8.2 The wider policy field 18

9 Conclusions, current issues, recommendations, policy options 20

10 Literature 21

11 APPENDIX..... 22

Listing of Figures

Figure 1: Stages of a policy process toward the implementation of measures (own scheme based on policy cycle approaches and discussions at the C3-Alps kick-off meeting and further email-based commenting rounds among the partners of C3-Alps) 10

1 Executive Summary

In the course of the C3-Alps project the climate change adaptation policy-making processes of different countries and regions in the Alpine space was assessed (in Workpackage 4 – adaptation policy and governance) to identify strengths and weaknesses as well as challenges and means to overcome them. Additionally, the science-policy interface was investigated in order to identify options to enhance the collaboration of science and policy stakeholders for climate change adaptation. This report presents the results of the investigation of the Swiss climate change adaptation policy drafting process. It is one of ten country or regional reports summarising the results for each specific country or region.

The results of this country report are based on four interviews that were conducted with experts representing the Federal Office for the Environment (FOEN) and the Federal Office for Spatial Development (ARE). These experts also responded to an online survey about climate change adaptation policy making in Switzerland. A document analysis of the first part of the National Adaptation Strategy added to the findings of this report.

The Swiss climate change adaptation policy drafting process focuses strongly on horizontal integration at the federal level. The drafting process was characterised by a consensus-oriented approach and based on a common methodology that was applied by the nine participating Offices. The FOEN was in charge of coordinating the drafting process. Every involved Federal Office developed a sectoral sub-strategy following the common methodology. The Federal Council approved the first part of the national adaptation strategy in March 2012. The second part, an action plan, is currently under development and expected to get approved at the end of 2013.

According to the interviewees the systematic and consensus-oriented character of the process as well as the result itself – a condensed, compact document that covers a broad array of topics including all relevant interfaces between policy fields – are seen as main strengths of the Swiss climate adaptation strategy development process. Other strengths mentioned are the fact that many different sectors were involved in the process and a commonly applied method allowing for a systematic assessment of climate change impacts across many sectors.

A major weakness identified is that the climate adaptation strategy development process, as well as the document itself, focuses too heavily on environmental topics. Other weaknesses are that the quality of the analyses of the different sectors varies distinctly and that so far no additional financial resources have been allocated for climate adaptation measures. One interviewee also pointed out that the document was difficult to read and in parts a little bit too lengthy. Another interviewee mentioned that only late in the process adaptation measures were considered as a part of the strategy.



Regarding the science-policy interface, a challenge for climate change adaptation policy-making in Switzerland, but not specific to Switzerland, is to acquire information and knowledge that is useful for decision-making and strategy development. The answers from the online survey revealed that in comparison to the level of effectiveness, transparency and professionalism, the level of science and evidence-based knowledge was judged rather critical by the respondents. A type of information that was mentioned as missing and at the same time potentially influential as it would likely spur political support or at least raise political attention of climate change adaptation is that of costs of climate change, including damages from climate change and those of adaptation measures.

There was broad consensus among the interviewees that the interface between science and policy needs to be improved. However, it appears to be an open issue how this improvement could be realised. One interviewee suggested that policy makers and staff of Federal Offices have to formulate more clearly what they want from scientists to improve the usefulness of knowledge 'produced' by scientists. Another interviewee proposed that more projects should be launched in which scientists and staff from public administration interact regularly.

To enhance the science-policy interface close interaction and frequent exchange including informal communication is needed. Following these recommendations would help to improve stakeholder interaction to form trustful relationships between different stakeholders that, in turn, will help to identify and handle knowledge gaps.

An upcoming pressing issue is the implementation of the strategy and the action plan at the cantonal and regional level, which will require a more pro-active interaction with the cantons and regions than in the past – at least as far as climate change adaptation policy making is concerned. Also, to enable implementation additional financial resources will likely be necessary, which have to be approved by the Federal Department of Finance.



2 Introduction

2.1 Methods

Data for this country report have been gathered in interviews and in an online-based survey. Two personal interviews were conducted on 21 August 2012 and two telephone interviews on the 21 and 24 September 2012 with representatives of the Swiss CCA policy that were involved in the development process of the CCA strategy (National Adaptation Strategy-NAS) in Switzerland. Three of the interviewees are employed by the organisation that was in charge of coordinating the drafting process of the above mentioned policy document – the Federal Office of the Environment (FOEN). The third interviewee represented a Federal office that participated in the policy development process; this office was the Federal Office for Spatial Development (ARE). Additional information has been gathered in an online survey to which five invited individuals responded – the four interviewees plus an additional employee from FOEN. Thus, the data was gathered with individuals that were and still are responsible for CCA policy making in Switzerland.

Additionally, the policy document was analysed based on a manual for policy analysis that was developed for WP 4 ‘adaptation policy and governance’ of C3-Alps.

2.2 Description of the situation (status quo)

At the time of the interviews the first part of the national CCA strategy had been approved by the federal council (*Bundesrat*). Thus, the first major part of the drafting process had been finished. The Swiss NAS has two main parts, a strategy document and an action plan, which is currently (winter 2012/2013) under development. The first document has a strategic character and defines the challenges and opportunities that motivate developing a CCA strategy. It also defines goals and principles of the Swiss approach to climate change adaptation. It contains aims and focal points for the sub-strategies, which represent the involved sectors and, finally, defines fields of actions for CCA measures of the sectors. The second part of the strategy—the action plan—will define measures for the involved sectors. The FOEN played and plays the role of a coordinator, whereas the involved sectors developed the sub-strategies, partly with the support of external experts from universities and private enterprises. Overall, the following sectors developed strategies, in one or the other form:

- Federal Office for Spatial Development (ARE)
- Federal Office for Civil Protection (FOCP)
- Federal Office for the Environment (FOEN)
 - Natural hazards



- Water
- Forest
- Biodiversity/conservation
- Federal Office of Public Health (FOPH)
- Swiss Federal Office of Energy (SFOE)
- Federal Office for Agriculture (FOAG)
- Federal Veterinary Office (FVO)
- Federal Finance Administration (FFA)
- Federal Office for Meteorology and Climatology (MeteoSwiss)

The FOEN has achieved that (almost) all sectors that were involved in the development of the first part of the strategy followed the same procedure in defining fields of actions based on assessments of likely impacts from climate change on particular fields. The sector representatives that participated in the process also identified the relative importance of the impact-induced changes for each field as well as the need for action for each impacted field.

The CCA policy process was at the time of the interview in Phase III – action plan development (see Figure 1).



3 Characteristics of policy document

In comparison to other countries' NAS the Swiss strategy is fairly compact. Despite this, some find it still a little difficult to read. On the positive side it is worth mentioning that the Swiss strategy document lists 10 principles, and not only aims and motivations of developing a CCA strategy, which are common elements of a CCA strategy. These principles are listed in the box below.

Principles of the Swiss CC adaptation strategy (part 1)¹

- CC adaptation follows the principles of sustainability; this implies that opportunities of future generations should be impaired as little as possible by actions motivated by CCA. This also means that interests/concerns of environment, economy and society will be considered in a well-balanced way.
- Adaptation follows the precautionary principle and the solidarity principle
- Adaptation is based on partnership between municipalities, cantons and federation and respects the actual responsibilities and competences (among these levels)
- CCA measures shall not contradict the aims of climate mitigation
- CCA is based on scientific evidence;
- CCA is based on risk analysis; focal points for adaptation are formulated
- The process is transparent and can be traced back
- Uncertainties shall be considered; robust measures shall be developed
- Different time scales of different fields/areas (of human activity) have to be considered
- Contribution to and participation in international exchange will be sought for
- Progress in adaptation is evaluated; indicators that make it possible to judge the impact/outcome/output shall be identified
- Adaptation is seen as a dynamic process that requires dealing with constant change in the environment; this change has to be documented and scenarios for future developmental paths have to be regularly updated.

¹ <http://www.bafu.admin.ch/publikationen/publikation/01673/index.html?lang=en>

Also characterising for the Swiss process is that a lot of effort has been put into the coordination of sectoral perspectives. In the policy document the term of interface is used to indicate topics that affect more than one sector. The efforts that have been made to identify these interfaces indicate that sectoral coordination is one of the main aims the policy document pursues; in a next step coordinated actions regarding climate change (CC) can be developed based on these interfaces.

22 interfaces among fields of action are identified in the policy document; and up to five topics are spelled out for each interface. As this list covers three pages of the NAS they are not listed here (see page 47-49 of the NAS, English version). Here only some examples are given for illustration purposes ‘water management and energy’, for example, is identified as an interface. It is also the interface under which most topics are mentioned, such as: discharge of cooling water from energy producing plants in water bodies; or distribution of water in times of scarcity.

Other sectors with four or more intersecting topics are agriculture and health; forestry and biodiversity management. Other relevant interfaces mentioned in the document are water management and agriculture (due to questions of how to distribute scarce water when it is needed for irrigation) as well as water management and its nexus with biodiversity management.

It also seems worth noting that the interfaces do not imply any prioritisation of future actions and that along the fields of action possible adaptation measures are developed in the ongoing phase of action plan development.

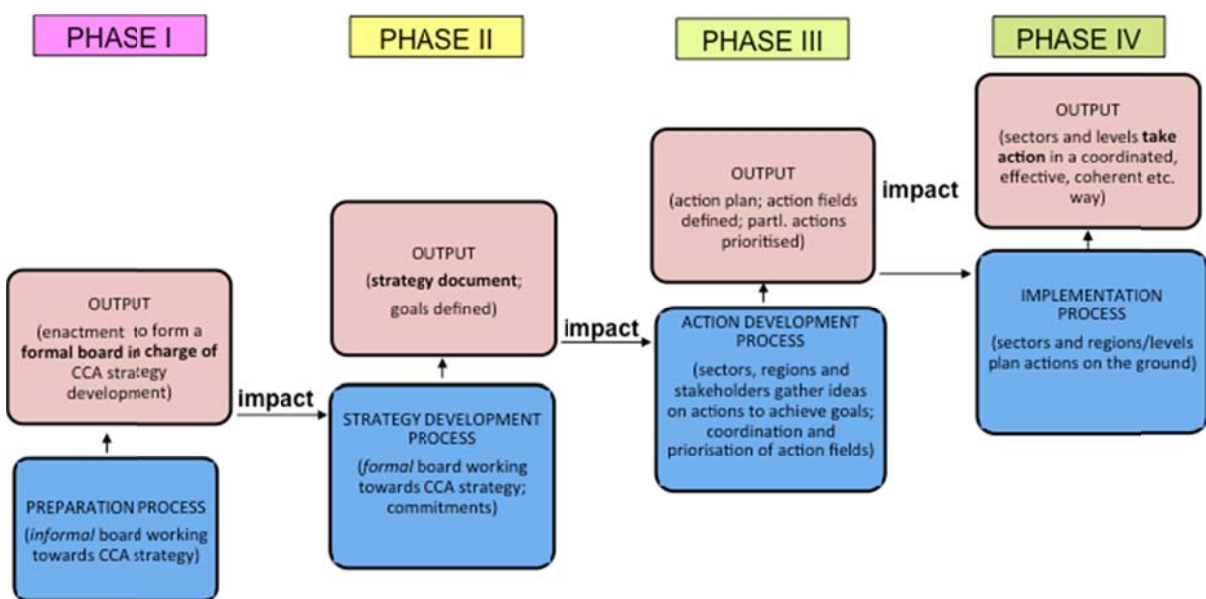


Figure 1: Stages of a policy process toward the implementation of measures (own scheme based on policy cycle approaches and discussions at the C3-Alps kick-off meeting and further email-based commenting rounds among the partners of C3-Alps)

4 Characteristics of the external factors

The interviewees found positive and negative aspects in the Swiss overall setting for CCA policy making. As positive they valued the official mandate by the federal council for the FOEN to coordinate the development of a strategy. As hindering they saw limited or lacking financial resources, lacking political will in the Cantons, knowledge gaps, particularly on the local level, and conflicting sectoral interests at the federal level.

Little helpful for CCA policy making is that CCA is not perceived as a major (political) topic. This is particularly true on the cantonal level where other topics are more pressing. Additionally, on this level the knowledge gaps are more prevalent as well as pressure of other topics, such as those related to the financial crisis. Also, since the accident in the nuclear power plant in Fukushima, Japan, an energy strategy has been developed for Switzerland, which shifts a lot of attention to related topics (such as 'clean' energy production and thus mitigation) and away from adaptation issues.

But there are also positive aspects to note in the Swiss setting. Supporting for the Swiss adaptation governance was the fact that neighbouring and other European countries also developed adaptation strategies. Scientific panels that make an effort to translate scientific research into policy relevant insights, such as those conducted by the IPCC (Intergovernmental Panel on Climate Change) or the OcCC (Swiss Advisory Body on Climate Change) also had supporting effects on Swiss CCA policy. The fact that Switzerland is a member country to the European Environmental Agency was also mentioned by one of the interviewees as supportive of CCA efforts.

Swiss-internally, it was the revision of the CO₂-law that helped to anchor CCA in the national law. A consequence of this process the revised version of the law, specifically, article 8 addresses CCA and constitutes CCA as second pillar of climate change policy. In order to coordinate the revision of the CO₂-law a new interdepartmental working group had been formed, which was then and is still employed to address CCA topics on the federal level. This working group was crucial for the development of the first part of the CCA strategy.

As mentioned above, the official mandate by the federal council was key for developing this first part. The fact that Switzerland had already adapted a sustainability strategy was mentioned (by one interviewee) as supportive of CCA policy-making activities. That some sectors had already applied practices that related to anticipated climatic changes also helped in these policy-making activities.

Responses to the online-questionnaire surprisingly revealed that resistance against CCA policy making from within the federal administration was perceived as stronger than opposition coming from external forces.

5 Characteristics of the policy document development process

Interviewees frequently labelled the Swiss policy process as consensus oriented and participatory. And the results from the online questionnaire revealed that it were the other sectoral offices at the federal level that were included in the process. Thus, the process focused on the horizontal coordination on the federal level; it was also based on a common methodology and focused on the identification of interfaces.

The procedure was that meetings were conducted within an interdepartmental working group (IDA – for its German acronyms), which was originally formed in the course of the revision of the CO2 law. In this particular working that focused on CCA, and which is called HF2 in Switzerland, the interfaces were identified and thus challenges formulated that required coordination within the working group. Parallel to this coordinative process sectoral sub-strategies were developed by the involved Federal Offices and their sub-sections, respectively.

When asked about conflicting issues and their characteristics we found that such issues emerged in the policy making process. Interestingly, the interviewees had fairly different perceptions regarding the history of these conflicts. An old topic that seems to have re-emerged under the umbrella of CCA policy making is, for example, the one between biodiversity topics and agriculture; also conflicts related to the development of winter tourism in the alpine regions seem to have been spurred in the course of debating options in the policy document development process. Potential competition problems that relate to water have been identified between energy production, agriculture and biodiversity/nature conservation. Regarding this conflict or, rather, potential competition problems, however, there seems considerable willingness to collaborate in finding solutions.

New conflicts that emerged concern the sectors of, for example, biodiversity and human health and are related to issues of land use. For example, it would assist the exchange of air among urban/populated areas and thus human health if open space existed in these areas, but conservationist as other sectors such as spatial planning prefer more densely populated areas to have overall bigger open space areas. A potential conflict between forestry and nature conservation concerns planting domestic versus foreign species that are adapted to warmer and/or drier climates.

Another challenge of such a policy drafting process is to constantly motivate representatives of the different federal offices to participate in and contribute to the process and documents, which imply (time) demanding activities.

Responses to the question about the professionalism of the policy development process revealed that that different federal offices seem to have diverging working cultures and that this is a challenge to climate change and thus intersectoral policy development. It seemed that

traditionally strong offices prefer top down procedures based on secure knowledge, whereas offices that have to deal with natural systems tend to prefer a rather consensus-seeking approach based on uncertain knowledge in a shared process of searching appropriate ways forward. This produced tensions as the values these institutions represent are also diverging.

Dealing with competing interests, open and potential conflicts as well as motivating invited representatives of federal offices to actually participate actively in the policy development process took considerable resources of those who were in charge of addressing and mitigating them in the course of drafting and getting approval of the policy document (=NAS).

6 Characteristics of the science-policy interface

6.1 Information sources and dealing with uncertainty

A challenge in the field of CCA policy making in Switzerland, but not specific to Switzerland is to acquire information and knowledge that is useful for decision-making and strategy development. The answers from the online survey revealed that in comparison to the level of effectiveness, transparency and professionalism, the level of the science-base was judged rather critical by the respondents. The additional information from the interviews made evident that it is not the lack of effort to acquire the necessary data but the lack of availability of useful information that explains the relatively low rating of science-base of the process. Or, in other words, the interviews revealed that policy makers are sometimes not satisfied with the information scientists bring to such processes; at least local level impact analysis and sector-integrative analyses were mentioned as desirable but lacking information. Another type of information that was mentioned as missing and at the same time likely influential with regard to political attention and potential support is that of costs of climate change, including damages from climate change effects. The only available study on this topic was published 2007 and it predicts relatively limited costs (in terms of GDP) as the result of climate change until 2050. This might have important policy implications as it fosters the belief that CC is an issue that can currently largely be ignored.

Additionally, and rather surprisingly the topic of uncertainty has not played a major role in the policy development process in Switzerland. This seems related to the fact that fairly early the decision was made to base the sectoral sub-analysis on two scenarios, that of 'strong' and 'weak' climatic change, assuming high and moderate changes in temperature and precipitation. As a consequence, the strategy and measures that are currently (Winter 2012/2013) developed are such that they provide benefits under strong and weak climate change.

6.2 Sources of scientific information and institutions of knowledge generation

The main source of scientific information that entered the processes is based on OcCC activities and related publications. The climate scenarios were elaborated by ETH Zurich, MeteoSwiss, the Swiss national meteorological service, and others and served as basic information in the process. The development of the sectoral sub-strategies was the responsibility of the sectoral offices and the sub-strategies were partly developed by external institutions, such as universities and federal research institutes. Subsequently, the information basis the different sectors used was fairly diverse.

There was also an informal review-process in which scientists (as well as Cantons, NGOs etc.) commented on drafts of the strategy in the course of the development process; drafts of the

strategy were also presented at OcCC climate symposia that are organised annually. An environmental lawyer was also included in the drafting process additional to the scientific staff employed by the federal offices that were the main developers of the document.

A weakness of the process was, according to two interviewees, that little or no social scientific information entered the document development.

Worth mentioning are organisational/institutional changes additional to the interdepartmental working group that is mentioned above. These organisational changes resulted from public administration's engagement in the topic of CCA. Whereas no new organisations seem to have been founded in response to climate change adaptation challenges, the activities of existing organisations have been extended. Examples are intensified activities of the Oeschger Centre at the University of Berne when it comes to CCA within the above-mentioned annual climate change symposia that tended to (overly) focus on mitigation or descriptive studies with regard to CC. Other examples of institutions that draw intensified attention to CCA are the C2SM, which is a (virtual) centre for Climate Systems Modeling and a joint initiative between the Swiss Federal Institute of Technology (ETH) Zurich, MeteoSwiss, the Swiss Federal Laboratories for Material Science and Technology (EMPA), and Agroscope Reckenholz-Tänikon (a federal research institute focussing on agriculture). Its "main objective [is] to improve the understanding of the Earth's climate system, and our capability to predict weather and climate." C2SM was founded in November 2008 and has been operational since March 2009 (<http://www.c2sm.ethz.ch/about/>).

Also the personal capacities of the section within FOEN that deals with CCA have been extended from two to four employees. FOEN has financed and co-conducted a series of studies, for example, the climate risk analysis project and a project on climate change adaptation in cities. It has also investigated and compiled information of adaptation activities in other European countries. Also, ProClim, the Forum for Climate and Global Change of the Swiss Academy of Sciences, largely composed of scientists that was founded in 1990 to "serve[s] as an interface and [to] enhance[s] communication between science, public administration, politics, economy and the public" is — according to the responses from the online survey — more aware about the topic of climate change adaptation and also about the need for more applied research.

Additional to the above mentioned activities of these organisations the following projects are worth mentioning: Swiss Climate Scenarios 2011 (CH2011), a research program on forest and climate change in which FOEN and WSL (the Swiss Federal Institute for Forest, Snow and Landscape Research) collaborate. Additionally, some impact studies have been performed in relation to hydro-power and irrigation. Also, knowledge has been developed on the topic of

hydrological impacts of climate change. For example, in the project CCHydro² (2009-2012 financed by FOEN) scenarios of climate change impacts on the hydrological conditions for different regions (of varying climatic and geomorphological conditions as well as alleviation) have been developed.

6.3 How to produce more useful information

The contributions of scientists, however, are seen as fairly academic and in several instances little helpful for policy making; few academic institutions can provide intersectoral/interdisciplinary approaches that consider different sectoral perspectives. Of little help is that different disciplines work with different methods and based on different basic assumptions. This can lead to results that are not comparable among disciplines and thus sectors; thus integrated assessments seem to be missing. The risk analysis commissioned by FOEN and developed and applied by Ernst Basler und Partner together with WSL is an example of an integrated assessment of climate related risks and chances across different sectors (Holthausen et al 2011). Some of the interviewees see potential in contributions of universities of applied sciences to contribute approaches to integrated assessments, allowing to assess the impacts of climate change making on different sectors in a comparative way.

There was broad consensus among the interviewees that the interface between science and policy needs improvement. It appears a largely open issue, however, how this improvement could be realised or what measures could be taken to improve the link. One interviewee suggested that policy makers (scientific staff of federal offices) needed to formulate more clearly, what they want from scientists to improve the usefulness of knowledge 'produced' by scientists. Another interviewee proposed that more projects should be launched in which scientists and staff from public administration interact regularly.

²<http://www.bafu.admin.ch/wasser/01444/01991/10443/12202/index.html?lang=de> or
<http://www.bafu.admin.ch/wasser/01444/01991/10443/index.html?lang=de> (German and French versions are available)

7 Impacts of CCA policy making

7.1 General impacts

Considering the impacts of CCA policy making, there seem to be diverging opinions, whether it is too early to speak about them. In the online survey four of five respondents actually stated that it was too early to discuss impacts of CCA policy. However, also four of five agreed that within the next five years concrete impacts of CCA policy would be visible. Most disagreement emerged over the question, whether CCA policy will have impact on other sector policies: two respondents believe CCA policy will have little influence on other policies, one is undecided and two respondents think that there will be rather bigger than little impact. With regard to changes in awareness for climate change adaptation, four of five respondents notice some change in the last three years within the federal administration.

7.2 Responsive and laggard sectors

As in other countries, different sectors act or react with different willingness and intensities to the challenge of CCA or an institution pushing for CCA policy making. In Switzerland it was the sector of natural hazard prevention that made early attempts to systematically address additional challenges that result from changing climatic conditions. They did so, for example, with the concept of the overload case (*Ueberlastfall*). The results of the online survey reveal that forestry, agriculture and tourism are other fields that are more pro-active in this topic. The federal office for agriculture, for example, has developed a stand-alone CCA strategy for the agricultural sector.

Yet, there are also sectors in which some resistance to CCA activities are still prevailing, which we decided not to name. Other sectors would like to contribute more but are lacking personal and financial resources. Overall the respondents of the online survey noticed a moderate rise in awareness of CCA issues over the last three years. Interestingly, also research was mentioned as a 'sector' or field in which major changes in awareness have been noted.

8 Strengths and weaknesses

Strengths and weaknesses concern several aspects of CCA policy and governance: the drafting process that leads to an approved policy document, the science-policy interface, the characteristics of the document itself, the impacts of (different stages of) the policy document development process and, finally, the wider political circumstances in which CCA policy making is embedded (and on which CCA policy makers have no or very little influence).

8.1 The drafting process

Over the strength of the drafting process there was great agreement. Among the strengths mentioned were that many sectors were involved in the process and that a common and good method allowed a systematic procedure of the assessment of impacts from CC across many sectors. Also, in the process interfaces where different sectors 'meet' were identified as well as challenges related to these interfaces. It was also stated that the compactness of the document constituted one of its strengths.

As weaknesses it was identified that the process as well as the document focussed too heavily on environmental topics. Another point of critique was that the analyses of the different sectors had differing depths and that so far no additional financial resources were provided for adaptation related measures. One interviewee pointed out that the document was difficult and in parts a little boring to read. Another interviewee pointed out that – unfortunately – only late in the process measures were considered at all as part of the strategy.

8.2 The wider policy field

As general challenges for the policy field knowledge gaps and lacking knowledge about the impacts of CCA on the different sectors were stated as well as sectoral interests that were in conflict or competing with objectives of CCA policy making.

Also, interviewees stated that CC did not play a big role in general and it was also speculated that this might have resulted from the fact that climate change is a slow process that is still seldom perceived. Other topics are seen as more urgent and particularly on the level of implementation (cantons) this results in passing related activities further down on the to-do list.

For the FOEN it is also a challenge that it could not force the other sectoral offices to act, but relies on their willingness to participate. This results in different levels of engagement of the sectors. There is evidence that those sectors that identify potential damage to their clientele in case of lacking adaptation to CC are more active (e.g., agriculture) than other sector. These others have not identified benefits from CCA and might fear to lose influence on political decision-making if

they pay much attention to ‘environmental issues’. This last point, however, is rather a speculation.

Overall, there seems to be a lack of support from the department of finance to CCA as soon as adaptation activities are probable to have major financial implications. This will become likely more relevant in the future, when adaptation measures will be implemented and incentives from the federal level to the cantons would encourage this implementation.

One interviewee who is also engaged with the cantons in the context of CCA emphasised, that the topic of CCA is frequently perceived as ‘another additional topic on the plates’ of the cantons. There are additional indications that allow the suggestion that the cantonal level might be overwhelmed by the topic. And, as other topics are perceived as more important, CCA tends to be seen or degraded as a ‘nice to have’. This is fostered by limited access to information by actors who are supposed to realise the implementation of adaptation policy.

On the cantonal level also scarcity of personal resources seems much more a challenge than on the federal level – at least when it comes to CCA. The fact that adaptation activities and impacts are decoupled in terms of time and the fact that there is some chance that nothing severe happens within the tenure of a particular public servant further aggravates the tendency to ignore new challenges as long as possible.

9 Conclusions, current issues, recommendations, policy options

An upcoming pressing issue is the development and implementation of the climate adaptation action plan. For the FOEN this will imply the challenge to motivate the cantons to advance ideas on CCA into measurements and projects 'on the ground'. This, in turn, requires a more pro-active interaction with the cantons than in the past (as far as CCA policy making is concerned). Therefore, it is recommended to get cantons more involved in climate adaptation policy making, e.g. by organising events specifically addressed to cantons and their needs; by providing guidance to identify climate vulnerabilities, to set regional and local priorities, and to draft regional adaptation strategies.

To successfully implement the climate adaptation action plan, additional financial resources will be necessary. These, however, need to be approved by the Federal Department of Finance, which so far appeared reluctant to the approval of (additional) financial resources for CCA. Thus, the challenge is to convince this department to take on the topic of CCA. However, the first part of the strategy states that the funding of CCA measures will be provided by the respective sectors. It is also recommended to look for synergies with other funding schemes and pilot activities to (co-)finance adaptation measures.

With relation to the interaction with scientists dealing with uncertainty will likely receive increasing attention; the publication of a guidance note for authors of the IPCC fifth assessment report on consistent treatment of uncertainties might spur debates between policy-makers and scientists on how to deal with uncertainties. Also, the topic of uncertainty might relate to the question of prioritisation of measures. Whereas one principle of the Swiss CCA strategy emphasises that uncertainties should not be used to justify inaction, it might be the case that CCA measures that promise a higher likelihood of positive effects get priority when available financial resources do not allow the realisation of all proposed CCA measures. Accordingly, it is recommended to develop scenarios not only for climatic parameters but also for socioeconomic developments, alternative climate change impacts, different adaptation priorities and measures, and also potential impacts of adaptation measures.

When it comes to the science-policy interface we suggest that close interaction, frequent exchange, including informal communication help to improve interactions. As a result trustful relationships will likely be formed that help to identify those knowledge gaps whose 'filling' has value for the public administration and other actors and which can be - at least partly - filled by research. The result of closer interaction, however, can only result in the selection of a reasonable path and not in the (one and only) correct one. Finally, the recognition and integration of social scientific methods and data into CCA policy making seems advisable.

10 Literature

FOEN (2012): 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.

Holthausen, N., Perch-Nielsen, S., Locher, P., de Haan van der Weg, P., Pütz, M., Bründl, M. (2011): Pilotprojekt Analyse klimabedingter Risiken und Chancen in der Schweiz. Schlussbericht.



11 APPENDIX

Name of interviewees:

- Melanie Butterling (ARE)
- Roland Hohmann (BAFU)
- Pamela Köllner-Heck (BAFU)
- Thomas Probst (BAFU)