



C3-ALPS

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 Italy.

Deliverable of WP4 in the C3-Alps project

**Dragana Bojovic
(CMCC)**

March 2013

funding programme



www.c3alps.eu
info@c3alps.eu

Recommended Citation Bojovic, D. (2013): Climate Adaptation Policies, Governance and the Science-Policy Interface in Alpine Countries and Regions. Country Report Italy. Deliverable of WP4 in the C3-Alps project.

Organisation Euro-Mediterranean Centre for Climate Change (CMCC) and Veneto Region, Italy (RV)



Author Dragana Bojovic

Contact Dragana Bojovic, Euro-Mediterranean-Centre for climate change,
dragana.bojovic@cmcc.it
003 90333 6130796

Delivery date 22. March 2013

Status Final report

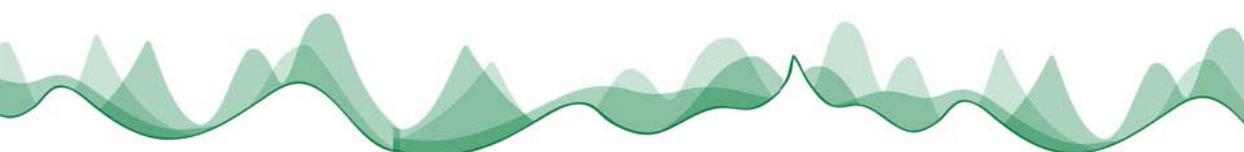
Distribution level Public

www.c3alps.eu



Table of contents

1	Executive Summary	4
2	Goals and methods	5
3	Description of the situation (<i>status quo</i>).....	6
4	Rationales for not having a policy document.....	9
5	Characteristics of the external factors/setting influencing the possible or emerging policy field of CCA	10
5.1	Supporting factors.....	10
5.2	Hindering factors.....	11
6	Activities towards a policy document or policy commitment.....	12
7	Characteristics of the science-policy interface.....	14
8	Impacts of CCA related activities.....	16
9	Strengths and weaknesses	17
10	Conclusions, recommendations, policy options.....	18



1 Executive Summary

This report investigates climate change adaptation (CCA) policy process in Italy. It is part of the C3Alps (Capitalising Climate Change Knowledge for Adaptation in Alpine Space) project's WP4 that looks into adaptation policy and governance. More precisely this report fulfils the project activities that aim at analysing and assessing the performance of climate adaptation policies, evaluating their strengths and weaknesses in the Alpine space, and reviewing the science-policy interface in climate adaptation decision-making. Italy is currently developing an official CCA policy (strategy) at the national level. Thus it was interesting investigating what preceded this stage and analysing the major issues the policy development encounters at this early stage. The analysis consisted of in-depth interviews with the experts from the area of climate change adaptation. In order to obtain a broad and objective picture of the situation, the group of participants included experts from policy field and research, but also a practitioner from the field.

Italy's particular organization with decentralized institutional setting is often characterised by the lack of a clear divide of responsibilities between authorities on different scales. The country's complex political and legal framework is recognised as one of the main obstacles for setting up the trans-sectoral and trans-regional adaptation strategy. Still, initiatives such as inter-ministerial round table could encourage discussion and help coordinating collaboration on CCA between different stakeholders. Another hindering factor is lack of knowledge on CC damage costs and CCA intervention costs. Thus, participants recognised that scientists have an important role in CCA governance, particularly in communicating the issue to the policy makers, but also to the public. Finally, unlike scattered public debates and media attention that have been following extreme weather events in previous years, a profound engagement of local communities is needed to improve success and effectiveness of CCA measures.



2 Goals and methods

This report is based on the analysis of the information gained through six in-depth individual interviews with the experts from the area of climate change adaptation in Italy. Interviews consisted of a profound analysis of the current and the expected situation regarding CCA policy in Italy. Participants had an opportunity to broadly elaborate their experience with and perception of the issue. Although the interviewer followed the interview guide provided by the WP4 coordinators, the interviews were flexible enough to allow participants to raise other issues and concerns, and to devote enough time to the questions that were of specific interest for them. Following the basic rules of conducting qualitative interviews, the interviewer explored a few general issues important for the CCA policy process, in order to understand the participants' views, but also respected how the participants framed and structured the responses, in order to gain a better picture. Although the team (CMCC and RV) carefully chose the participants, aiming to gain a comprehensive picture of the situation, we need to keep in mind that the in-depth interviews are the only source of information for this report¹. Thus, the purpose of this report is limited to uncovering and describing the participants' perspectives on the issues of CCA policy process in Italy. We should be particularly cautious in deriving general conclusions and be clear that this is the subjective view of the participants.

The qualitative analysis of the interviews was done by the interviewer (Dragana Bojovic), while other colleagues contributed to the work in the design phase and with comments to the report (CMCC - Euro-Mediterranean Centre for Climate Change and RV - the Veneto Region) and by conducting an additional interview (EURAC –European Academy of Bolzano).²

¹ Findings from the interview were also compared to a report from 2010, Westerhoff, L: Planning for Today: The nature and emergence of adaptation measures in Italy (in Keskitalo, E.C.H. (Ed.) (2010). Developing Adaptation Policy and Practice in Europe: Multi-level Governance of Climate Change. Springer)

² This interview was conducted by Luca Cetara.



3 Description of the situation (*status quo*)

CCA policy is institutionally at the very beginning in Italy, including the general vision, planning and coordination, although some interventions have already been undertaken. Thus, although an overall comprehensive policy is missing, there are fragmented actions that need coordination and integration, as well as a better implementation process.

Discussion on developing a CCA strategy was initiated during the National Conference on Climate Change in 2007. Still, not much has been done until recently, when the development of the national CCA strategy started. In 2012, the Ministry of the Environment, Land and Sea commissioned CMCC to support it in elaborating the contents of the new national strategy on CCA. This initiative resulted in a National Working Group that aims at defining a national policy on adaptation to climate change and it is co-chaired by an officer from the Ministry and an expert from CMCC. This collaboration should provide 3 main documents:

- Synthesis of the state of the art on the knowledge on vulnerability, impacts, risk and taken CCA measures;
- Analysis of a possible governance of CCA in Italy;
- Strategic document including guidelines and recommendations for different sectors.

The first report of the National Working Group, aimed at reviewing the state of the art and at drawing impact assessment for each of the sectors considered, was completed at the end of 2012³, while the other two documents should be provided by the end of 2013.

Besides the National Working Group, this initiative also envisages an inter-ministerial board for CCA. Furthermore, the initiative includes a task force specifically dealing with mountain areas (Alps and Apennines), while each sector is coordinated by an experts' task force. Italian Regions will be requested to outline proper CCA plans coherent with the goals and methodologies adopted by the National Working Group. Besides, the EU has an important influence over Italian environmental policies, including adaptation. This comes from the obligation to implement EU directives and develop national plans that reflect EU policies. One example is the EU Water Framework Directive (in Italy *Decreto 152/2006*).

Looking into the existing CCA measures in Italy, it appears that most of the activities under the umbrella of risk prevention and reduction also consider, or should consider, risk from climate change, and could be, to some extent, labelled CCA activities. As explained by one participant, an

³ "Strategia Nazionale di Adattamento ai Cambiamenti Climatici per l'Italia: Rapporto di sintesi delle conoscenze scientifiche" (National Strategy on Climate Change Adaptation in Italy: Summary Report of Scientific Knowledge)

important issue is to better merge two communities, the one of climate change (e.g. economists, modellers, climatologists, impact scientists) and the one of risk reduction experts (costal and urban planners, engineers etc.).

Some sectors in Italy are more advanced regarding CCA than others. For example, some activities regarding water management have already considered adaptation and are supported by the Central Government as well as regional governments and regional authorities. Examples include costal protection activities, wetland management, strategies against desertification, and hydro-geological risks. Prevention from these risks is necessary, independent of climate change; still climate change is an additional pressure to these risks.

On the regional level, e.g. the Veneto region, some of the measures for improving water management are based on planting trees in order to preserve soil water table level, and changing the balance of water in a catchment area. Two authorities in this region are in charge of water management: Consorzi di bonifica (land reclamation consortia) and Genio Civile (Civil engineering). Besides, basin authorities have an important role in river management, that present “intermediate” (supra-regional) structures, between the central and the regional governments. Basin plans, produced by these authorities, are used for river management.

Lombardy region has developed a detailed guidance and a feasibility plan that should facilitate development of the final regional adaptation plan. Some activities in this region already hold elements of climate change adaptation policy, such as the Prim programme: A Regional Plan for Integrated Risk Assessment and Management that presents a set of measures developed in this region. Other examples are Hydro-geological plan for Lombardy region, where the adaptation of hydro-geological risk management to new challenges is foreseen as a way to keep the level of the risk the lowest possible (in agreement with the National Law 267/1998 – “Legge Sarno”) and the RICLIC project - Regional Impact of Climatic Change in Lombardy Water Resources, looking into synergic effects of natural and human processes of CC on underground waters.

Looking at the sectoral level, the tourism and the insurance sector appear proactive regarding CCA. For example, winter tourism needs to rethink the way in which it supplies services to tourists and to find other ways to attract them. Some of the examples of the concrete CCA measures in this sector are protecting glaciers from melting, by putting plastic cover in summer (in Lombardy), and raising awareness on lowering of water level in glacial lakes. Regarding the insurance sector, it has been adjusting risk sharing and risk pooling practices to respond to extreme and catastrophic weather events.

As regards the role of municipalities, some cities in Italy, e.g. Bologna, have been developing adaptation plans. Venice has a warning system for high water events, and a defence system of mobile gates for the protection of the Venice Lagoon from the Adriatic Sea in the time of high water level is under construction. Some of the municipality activities are supported by the EU

funds, such as Life+ Programme. Municipalities need to motivate policy-makers to more urgently consider CCA in their agenda, as climate change impacts are being felt and will be felt the most on a local/ municipality level.

Important actors regarding development of the climate change policies, including CCA policies, are non-governmental organisations (NGOs). In Italy, in the last few years, scientific organisations, such as research institutes, have been providing robust scientific information on climate change and have been involved in the knowledge transfer to institutional bodies in charge of CC competences and decision-making. Their role is fundamental as advisors in the initial phase of CCA strategy development, by helping determine impacts, risks, and vulnerabilities of CC effects on a territory. Scientific organisations can also play a key role in education processes and dissemination activities that enable the general public to become aware of the current and future implications of CC. One example for latter is Academia Olimpica di Vicenza.

Regarding awareness raising activities, environmental NGOs can play an important role. However, they demand from policy makers more strict legislation regarding climate change prevention, so the majority of the proposed activities from these organisations are focused on mitigation measures. Among these organisations are: WWF Italy, Legambiente, Kyoto Club, Gruppo 183, Fondazione Lombardia per l'ambiente.

Still, according to our interviewees, more awareness regarding CCA is needed, as for now, only during the extreme weather events (e.g. heat waves in summer and floods in winter) the media pay attention to CC and people are concerned about the changing climate. The scientific community should urge media to increase awareness not only among decision makers, but also among the common people, who are their electors.

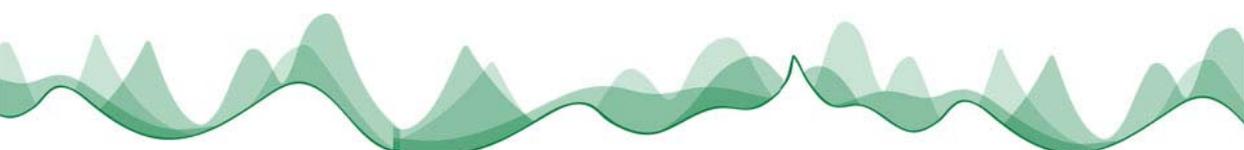


4 Rationales for not having a policy document

According to the participants of this study, the main reason for not having a policy document is a lack of strategic thinking by the central government and a lack of perception of the necessity to practice CCA on the side of policy makers. Our interviewees consider that knowledge about climate change is still not widespread, and thus other problems have priority. In addition, environmental interventions are perceived as a cost, which further decreases the possibility of prioritising CCA, although some regions (such as Veneto) are already paying huge costs for damages done by extreme weather events. Besides, some sectoral measures have been set up within several administrative borders that are often not corresponding to the geographical areas of the CC impact. Finally, the reason for non-existence of a CCA policy document also lies in the fact that the Italian Government has so far predominantly focused on mitigation.

Participants mainly think that having an official document addressing CCA explicitly is of crucial importance, as climate change risk may amplify other existing risks. Without a policy document different regions and activities cannot be coordinated. For example, CC impacts may affect several sectors at the same time, demanding for joint, inter-sectoral strategies and cooperation of the affected sectors. Only with a regional and national CC adaptation plan it is possible to draw an implementation framework for efficient and effective adaptation, to tackle risks and increase the CC resilience of the affected systems.

Without a comprehensive CCA strategy the risk of having investments and regulations on specific sectors hampered by CC impacts is greater. Besides, monitoring of the actions and efficient allocation of resources are also difficult without a strategic approach. Once the strategy is available, major vulnerabilities are identified and guidelines for action proposed, it will be easier to develop adaptation plans. These plans, in turn, will propose specific measures to be implemented; local authorities will likely have the responsibility to implement these measures. So, before any plan is put in place, it is important to have a common strategy – a vision, indicating priority areas for intervention and guidelines for these activities. Moreover, one participant considered it would be better to first define overall climate change policy on the central level, to start with a more general framework, before specifically focusing on adaptation.



5 Characteristics of the external factors/setting influencing the possible or emerging policy field of CCA

5.1 Supporting factors

Harmonization of the Italian legislation with the EU legislation has a positive effect on CCA in this country. For example, the Common Agricultural Policy (CAP) can positively influence the switch from the actual species and varieties towards growing those that are less vulnerable to temperature and water stresses and motivate the introduction of more efficient irrigation systems.

Significant positive effect on climate change policy process could come from the acknowledgment of ancillary benefits from these policies (e.g. benefits for development). Thus, these positive externalities should be communicated in an appropriate way.

Extreme weather events, with an increasing frequency due to climate change, may influence and speed up the CCA policy process. The participants mentioned a couple of recent extreme weather events in Italy. Among them are:

- Drought from 2012 - heavily impacted agriculture;
- 2003 summer heat - pushed for implementation of the heat-wave early warning system;
- 2010 flood in different parts of Italy - triggered development of a plan for the civil protection from floods;
- Extreme flood events in Southern Italy in 1998 - pushed for issuing of a national law on the prevention of hydro-geological risk (National Law No. 267/1998, known as “legge Sarno”).
- Coastal storm surges - although the north Adriatic coast is particularly vulnerable to these events, there is still no long term strategy to respond to this;
- More frequent and intense forest fires, especially the one from August 2011 - fires leave strong impression on people and present a problem that can easily be communicated.

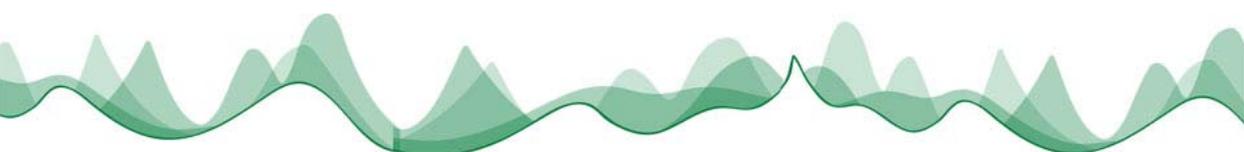
These events have been gaining media interest and media usually identifies them as climate change impacts. While the interest of media in these extreme weather events could have had an awareness raising effect and also incite reaction from policy-makers, some of the participants are cautious when estimating the effect of media attention; sometimes media relates every weather phenomenon to climate change, which is not always true and can be misinforming. Besides, the public is usually convinced by a more skilled communicator, independently from the science profoundness behind his/her position.

Extreme weather events are usually followed by public debate on climate change. With extreme weather events, climate change is turned from a general (faraway) problem to a direct damage, so people ask for action by the authorities. Still, some participants consider that the public debate on climate change does not play a significant role, as it does not represent a steady element but fragmented reactions, happening usually after disasters. Nevertheless, the participants are convinced that local communities need to be engaged more in the issue of climate change, especially when direct CCA measures are to be decided, as these measures have strong effect on local level, and their success depends on the people involved. In this case, a shared, participatory approach is needed.

5.2 Hinderling factors

Some of the main hindering factors include lack of knowledge about climate change impact, and the cost of postponing CCA activities, but there is also lack of knowledge about new technologies. Uncertainty and delay that characterise the topic of CC may also hinder the policy development, while the urgency of CCA policy is often not fully perceived by the decision-makers and the political community that rate CCA as a minor issue in their political agenda. Insufficient funding is also perceived as an important barrier for development of CCA policies, particularly as benefits that may derive from investing in adaptation are underestimated. Besides, corruption could be a hindering factor for the coordination and integration of CCA activities.

Another big obstacle, mentioned by all the participants, is the institutional organisation in the country. Namely, the decentralised institutional setting in Italy often results in the lack of a clear divide of responsibilities between authorities on different scales. The complex political and legal framework of Italy implies diverse roles and responsibilities of actors on different scales including national, sub-national and regional; but among these actors are also provinces, municipalities and large metropolitan areas. A coordinated trans-sectoral and trans-regional adaptation strategy is difficult to set up in this complex institutional setting. Implementation of the strategy will be an additional challenge as it has to occur on the municipal level.



6 Activities towards a policy document or policy commitment

Reaching one comprehensive document on CCA, considering all different actors, economic interests and regional problems is a challenging task. This task will demand good coordination and collaboration between authorities at different levels, and sectors, as well as among the public and the private sector. Italy may also lack people with adequate knowledge and training to coordinate CCA activities. Additionally, whereas long term planning is needed in order to achieve CCA, it is not of interest of politicians that have 4-5 year political mandates to push the topic of CCA, as the benefit of these activities will likely only pay off in decades. Similarly, as noticed by one participant, the concept of CCA has not yet entered political agendas of different political parties.

Once a common document (strategy) is developed, a new challenge will be to convert it into concrete action plans, in order to reach effective implementation of the strategy.

CCA is already mentioned in different sectoral documents and common plans, but the problem is that it is not put in a real context and implementation is often missing. The challenge is to have a clear description of uncertainty related to additional pressure coming from climate change, which is needed in order to mainstream the CCA into sectoral plans. Besides, these new interventions will also demand additional financial resources.

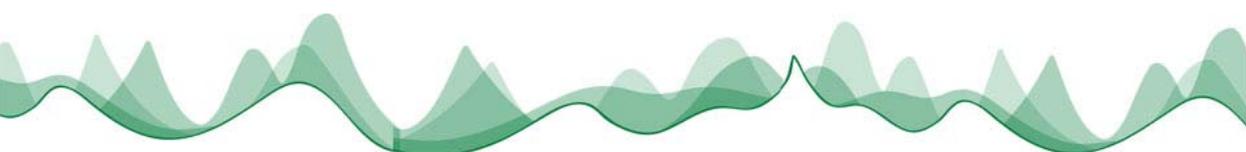
Participants expect that other concrete challenges related to CCA will mainly be related to water resources. Water balance – between available water and water demand - is becoming unstable with the appearance of water deficit. In order to tackle this problem, a precise calculation of what is the available water and what is the water demand is needed, taking in consideration climate change effects, which will increase the variability of available water. To tackle this, Italy needs to improve capacity of water managing bodies and provide regulations for the maximum water use.

Water use is, according to the participants, expected to drive major tensions and conflicts once the CCA strategy is developed. This may include following conflicts:

- Water use between agriculture and tourism (e.g. about water from artificial lakes);
- Water use conflict due to different flood risk in the mountains and in the valleys (“What is done in the mountains is paid by valleys”, i. e., channelling water away in the mountain negatively effects settlements and agriculture in the valleys as flow-off peaks increase when the aim of the infrastructure put up in the mountains is getting rid of water as fast as possible);
- Use of underground water (with the expected decrease of the amount and quality of this resource);

- Between water managers and farmers (e.g. farmers are reluctant to forgo their land to provide temporarily water storage);
- Between the paper and wooden panel producing sector, on the one hand, and the energy sector that supports biomass production, on the other;
- Between the building sector and water managers (from (an environmental/ecological oriented) water management perspective it would be desirable to make buffer zones in forms of green areas in river and coastal zones, without any built structures).

Conflicts can also be expected from the coordination of activities among authorities from different level, e.g., central and regional authorities, as well as between different sectoral authorities. Finally, a lack of resources and the investment prioritisation could also bring new conflicts.



7 Characteristics of the science-policy interface

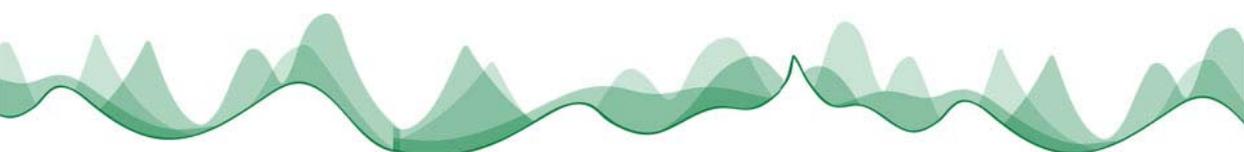
While all the participants agree that scientists have a fundamental role in CCA and that they should be given more importance, they also consider that scientific community is responsible for providing good and precise evidences that would support adaptation activities. Scientists are also seen as responsible for finding a way to properly communicate the issue. The high status of scientists in society additionally amplifies their responsibility to communicate their results in an understandable way.

The participants are also aware that scientists lack a clear role in interdisciplinary sciences, such as CC, which is particularly important in the context of CCA. Namely, climate change scientists need to balance on the interface between policy-making, the public and the private sector. One participant recognised the role of linking or connecting actors, such as managers in public administration, who can improve the interaction between scientists and other stakeholders. Nevertheless, these actors usually do not have enough expertise in conducting this work. Thus, Italy needs trained and specialized people in the right positions throughout the whole CCA policy-making process.

Participants consider that the communication of knowledge and uncertainties related to climate change has not been sufficient so far. IPCC is mentioned as an isolated example of effective climate change science communication, while this communication is missing on the national, regional and local level.

Communication of uncertainties related to the climate change scenarios and impacts presents a big challenge for scientist. Although policy-makers act under uncertainty every day, uncertainties related to climate change sometimes render the perception that much less is known about the issue than actually is.

Participants recognised the overall need for better knowledge dissemination and that scientists should be encouraged to write for local media, meet policy-makers and become an actor of the knowledge diffusion about climate change. Still, it is not always easy for scientists to reach top policy makers. Thus, sometimes this communication is achieved through personal relations between some groups of scientists and members of the public administration. This fact, that collaboration depends on personal contacts, and is not institutionally based, may at the same time present a weakness of the system. To address this problem, participants suggested creating boards of experts and the organisation of discussion tables. For example, during the preparatory phase of the guidelines for the regional CCA plan in Lombardy, a participatory process was initiated with round tables that involved officers from the main Directorate Generals of the regional administration, aiming at making them familiar with the state of the art on knowledge and the existing uncertainties related to CC at the regional level. Another example are permanent



cooperation tables at the national level with scientists, civil servants and decision-makers that meet to discuss the National Strategy on CCA.

An interesting suggestion for better knowledge communication and dissemination is to create events where people can get in direct contact with the problem (i.e. going into field and seeing the problems in forests, on agricultural fields etc.) and where solutions can be clearly presented.

Besides playing an important role in development of the National Strategy on CCA, scientists' role should also be central during the monitoring phase on the effectiveness of the strategy. But in order to do so, it is necessary to establish a lasting dialogue between the science and the policy-making communities, and a transparent data sharing throughout the process. One option is the development of a web platform that may facilitate the transparent sharing of monitoring data, impacts and adaptations to CC (such as European Commission's CLIMATE-ADAPT).

Participants also noticed that, while there is already enough information to motivate policy-makers to start planning the strategy and measures, information is sometimes not used properly. Also due frequent shifts of responsibilities between authorities on different levels in some sectors (e.g. forestry policy jurisdiction is transferred from the Central Government to the regional level), inclusive databases are missing. Furthermore, some existing archives, e.g., those with hydrological measurements have been abandoned. They could be updated and used again.

The assessments of climate change impacts and adaptation options have been carried out by some scientific organisations (for example, ISPRA - The Institute for Environmental Protection and Research, CMCC, FEEM –Fondazione Eni Enrico Mattei). Still, according to the participants of this study, higher resolution models should be developed, and regional climate scenarios at a detailed spatial scale, to more precisely estimate these impacts. Besides, comprehensive information is still missing regarding expected climate change damage, cost of adaptation measures and the cost of postponed action.

Finally, we should bear in mind that how the science-policy interface in this study is presented may be shaped by the fact that the interviewees were predominantly scientists.

8 Impacts of CCA related activities

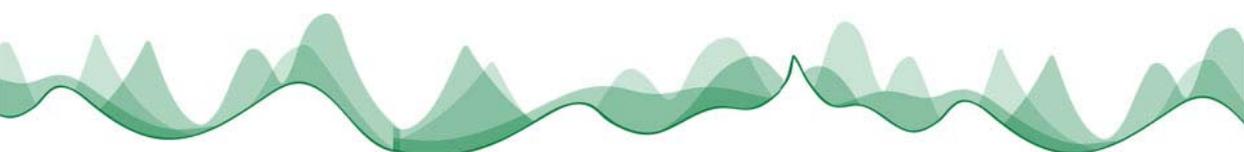
National CCA strategy presents a new effort to bring together all the existing experience and expertise.

However, some sectors have already been active in the area of CCA. Participants recognised the following sectors as the most responsive to the issue of CCA:

- Agricultural sector (switching to species and varieties that are better adapted to water and temperature stress and introducing more efficient irrigation systems);
- Health (heat wave protection - National Plan for the Prevention of the Effects of Heat on Human Health);
- Tourism (protecting glaciers by covering them in summer, artificial snow production, differentiation of the touristic offer);
- Water management (costal protection activities, flood early warning system, wetland management, hydro-geological risk management, strategies against desertification, planting trees in order to maintain soil water table level, abandoning land for temporarily water storage during the floods, PERMANet – long term permafrost monitoring network in the Alpine region);
- Forestry sector (fires prevention, National Network for the Monitoring of Forest Ecosystems - CONECOFOR);
- Soil erosion and stabilisation control;
- Energy (hydropower system adjustment to different water regime);
- Building sector (development of energy efficient houses, made of environmental friendly materials).

These sectoral activities connect different levels of governance, from the Central Government and ministries (of the environment, agriculture, energy, health) to regional authorities, mayors and municipalities, but also include public authorities responsible for specific sectors (e.g. basin authorities responsible for water management), and finally citizens.

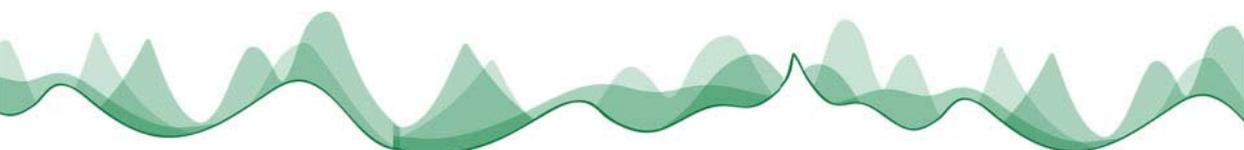
One inspiring comment was that climate change polices will “oblige us to change behaving and in this sense it is a positive aspect, pushing for rethinking our development path. “



9 Strengths and weaknesses

Some aspects of the interaction between scientists and policy makers are considered as strength in the CCA policy-making process. For example, personal contacts between public administration and some groups of scientists can enable better relationship and more profound communication, but this also constitutes a weak point in the system, as we discussed above. Besides, if scientists address the questions that policy makers are interested in, which are usually also the matters important for the society, policy makers are more willing to listen to them. This also includes avoiding presenting scientific reports, or catastrophic long-term scenarios, but rather suggesting concrete day-to-day activities to tackle the problem. Finally, CCA policy-making process would gain strength from engaging trained and specialised people.

Participants mainly agreed that for achieving more effective CCA governance, Italy would need to change the political system and engage policy makers welltrained in climate change issues. Besides, clearly defining responsibilities between different governmental levels, together with reforming the legal system could add to better governance. One participant also recognised the importance of investing in education and culture, while another emphasised the benefits of having a singular body under which CCA polices would be determined.



10 Conclusions, recommendations, policy options

Different stakeholders should be actively involved in order to achieve effective adaptation governance. The central government has a role in preparing guidelines for the new strategy. A key role in the initial phase, according to this study, plays the Ministry of Environment, Land and Sea. This Ministry initiated the development of the CCA strategy, involving scientists in the preparatory stage. Involving scientists from the very beginning in the development of the National Strategy on CCA could be considered a positive step towards dialog and collaboration between scientists and policy-makers on this regard. Other Ministries need to be included as well. Local authorities will have a leading role in the implementation phase. In this phase regional authorities have to collaborate with municipalities and supra-regional bodies such as basin authorities. Finally, successful policy implementation will depend upon local stakeholders and citizens, while involvement of scientists in the later phase will ensure monitoring of the CCA strategy effectiveness.

The Ministry of the Environment, Land and Sea is in charge of setting up an inter-ministerial round table that should support the development of CCA strategy. This inter-ministerial table is expected to increase coordination between decision makers on different levels of authority, in order to develop the strategy in a harmonized and widely approved way. This strategy also envisages a stakeholder discussion, including the private and the public sector. The challenge now is to realize this idea and achieve coordination and discussion, first among different levels of institutional authorities in Italy and then among the public and the private sector. For achieving better coordination of the activities in the implementation phase, Italy will also need a comprehensive national database, like the European Climate Adaptation Platform. The new CCA strategy should be supported by boards of experts, through discussion tables, and improved information exchange. Also leading scientific institutions (such as Institute for Environmental Protection and Research - ISPRA) should more actively work on the integration of scientific research produced by people/institutions specialized in different fields.

In CCA governance scientists could and should have an important role in communicating the issue to policy makers, but also to the public. Thanks to some established relationships this interaction is stronger in some and weaker in other regions. Still, scientists from the multidisciplinary field of CC should work further on increasing their visibility, and putting effort in improving their communication skills.

Some of the major still existing knowledge gaps regarding climate change are CC damage costs and CCA intervention costs. As long as environmental interventions are perceived as costs and not as investments, it will be difficult to persuade policy makers to act; in particular, CCA measures could

and should be seen as generating a “co-benefit” without requiring the set-up of completely new policies.

Finally, a complex institutional setting in Italy and, sometimes, unclear division of responsibilities between authorities on different governmental levels should be carefully considered if effective climate change governance is to be achieved and the CCA strategy efficiently transferred into adaptation plans. Thus, the inter-ministerial board for CCA should incite communication and collaboration in the CCA strategy development phase between the key actors to set up the strategy. In the following phase, implementation and monitoring of adaptation plans will also demand committed cooperation and coordination of different authorities in Italy and also collaboration with the public and private sector as well as the general public.