

WATER AND CLIMATE CHANGE IN MEXICO 2007-2012

This document was commissioned by the Conagua due to the growing need to systematize the different actions carried out by the water community in Mexico to face the impacts of climate change. In the majority of cases, these actions have arisen spontaneously in recent years given the needs of each organization and administrative area of the Conagua to incorporate new practices, considerations and modalities in order to carry out as efficiently as possible their daily tasks, faced with the significant uncertainty represented by current climate conditions, and the even greater uncertainty in the future. It is important to highlight that the water community is initiating a collective learning process in this field, although water resources management, by definition, has always been about dealing with changing climate conditions – only not at the same scale.

As a result of this interest from the Conagua, a consultancy was undertaken by the author of this document between October and December 2012, in the framework of the Project to Strengthen Integrated Water Resources Management in Mexico (PREMIA), a joint project between the WMO and the Conagua, described in action 2.3.

This consultancy resulted in a catalogue of water and climate change actions in Mexico in the period 2007-2012, as well as this document, which aims to analyze the catalogue as well as selected actions from it, so as to be able to highlight some current trends, challenges and areas of opportunity in the future.

The initial effort to systematize the water and climate change actions from the 2007-2012 period in the catalogue reaped 118 actions; 81 from the Conagua, both centrally and its regional offices, and 37 from other organizations. It should be mentioned that without any doubt this number is only a small sample of what was actually implemented in Mexico on this issue in the aforementioned period, by both governmental and non-governmental organizations, as well as from both water organizations and those from other related disciplines. However, this sample is believed to be relatively representative of the bigger picture, thus allowing an overview of what has been achieved in the period to be drawn up.

The actions in the catalogue were classified and analyzed from two main perspectives: firstly, their substantive focus, including adaptation for various purposes and mitigation, or in other words the “what” of the action. In this sense, the same nine categories were used as in the Inventory of Water and Adaptation Actions in the Americas (www.aguaaaa.org); and secondly, through five crosscutting factors or approaches, which were the challenges that the actions sought to overcome through their implementation (or the “how”).

In both cases, it should be mentioned that one action may consider various focuses and factors in parallel.

The results of the analysis of the substantive focuses of the 118 actions in the catalogue may be found in illustration 2. It should be highlighted that 47 out of the 118 actions (39.8%) were an attempt to solve environmental problems and 44 actions (37.3%) deal with the question of basic services. Additionally, a large share of these actions deal with issues of either the excess of water (floods) or its scarcity (drought), with 42 actions (35.6%) each, confirming up to a certain degree that necessity is the mother of invention, given the conditions that the country has experienced in this period. Finally, relatively few actions were an attempt to tackle urban or rural issues, and even fewer attempted to tackle mitigation, sea-level rise or other issues.

To define the five crosscutting factors, some thought was put behind the question “what needs to be adapted to face the impacts of climate change on water resources?” The response, like the problem, is complex, containing multiple interwoven and interdependent elements:

Water management institutions will have to be updated, since they were mainly designed to deal with a more stationary set of issues, in social, economic and environmental conditions from another time;

The water community's planning and cooperation practices and processes will have to be adjusted to take into account the new demands imposed by the changing climate, as part of a more holistic vision of the role of water in sustainable development processes;

The technical knowledge base on the impacts of climate change on water will have to be enhanced in order to be able to foresee and interpret more precisely the impacts of climate change on the components of the water cycle in the future, as well as outlining the actions to be carried out to cope with these changes;

The water community's financial arrangements will have to be diversified in order to allow greater flexibility when facing the onset of unexpected occurrences, and so as to be able to relieve the current dependency on funds from the federal government; and

Better use will have to be made of existing science as well as investing in the research and development of new technologies to prepare a response that is more adapted to the problem at hand.

The definition of these five inter-related factors was used to classify the actions in the catalogue, as well as serving to define the chapters in this document. It should be highlighted that the majority of the actions in the catalogue (89 actions or 75.4%) sought to improve planning and cooperation efforts; 68 actions (57.6%)

aimed to enhance the knowledge base; 59 actions (50.0%) constituted attempts to make better use of appropriate science and technology; and relatively few actions (28 and 27 actions, or 23.7% and 22.9% respectively) set out to foster institutional/regulatory strengthening and/or innovative financial schemes/arrangements.

Subsequently, it was considered relevant to cross the information between the aforementioned focuses and factors. This crossover of classifications allows a robust matrix to be established in order to quantify the actions in the catalogue, which reveals in some way a prioritization of the water and climate change actions carried out over the last six years. This crossover reveals that the most common “cells” are adaptation for floods aiming to improve planning and cooperation efforts and to enhance the knowledge base, measuring and monitoring, as well as adaptation to solve environmental problems through planning and cooperation efforts. On the other hand, there are very few actions on the issue of institutional and regulatory strengthening for mitigation of GHG emissions, for example.

Another possible means of analysis is whether the actions are an explicit effort to solve climate change-related issues, which would not therefore have been carried out without the incidence of this global phenomenon, or on the other hand are what we might identify as actions that would have been implemented with or without climate change, or “business as usual”.

After analyzing the catalogue, it is estimated that 18 out of the 118 actions, or 15.3%, were explicitly designed to face the problem of climate change, the others being more traditional actions in which, in some cases, some aspects of climate change have been incorporated, or which it is considered that even without including additional climate variables, contribute mainly to the issue of adaptation.

The production of this document was based on the analysis of the catalogue. In order to exemplify in greater detail what courses of action can be taken to fulfill each of the five factors, four actions were extracted from the catalogue, resulting in the twenty actions presented in this document. It is important to clarify that these actions are not necessarily “better” than the other actions in the catalogue, but put together they do constitute a wide range of examples that show in fairly representative fashion the path that the water community has taken in recent years. There are many other interesting actions that could have been included, some of which are briefly mentioned in the introduction to each chapter, but for the purpose of keeping the document relatively concise, only these illustrative examples were used.

Finally, it is interesting to reflect upon the fact that many of the actions presented in this document exemplify at the same time several of the factors and focuses, and therefore could have been included in several chapters.

For example, the Modernization of the National Meteorological Service was selected to exemplify its innovative financial aspects, although it also fulfills the characteristics of the other four factors. Perhaps one conclusion that could be drawn from this consideration is that actions that aim to overcome several challenges, in some cases, might have a greater impact. The categorization used for the purpose of this document should therefore be considered as a flexible framework that allows some general trends to be brought forth, rather than a straightjacket.

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