

Alpine Convention

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Drought risk Management in the Alps

SUSTAINABLE MANAGEMENT OF WATER RESOURCES AND RELATED SHORTAGE SITUATIONS

Permanent Observatories On Water Uses



MINISTERO DELL'AMBIENTE
E DELLA TUTELA DEL TERRITORIO E DEL MARE

GENERAL DIRECTORATE
FOR SAFEGUARD OF LAND AND WATER

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WATER SHORTAGE



The increase in the frequency of droughts and the reduced pluviometric contribution represent a clear sign of the climatic changes currently occurring, even more accentuated by the increase in short-lived high intensity rainfalls with high temperatures above average seasonal values.



The situations of reduced water availability can result in prolonged lean conditions in the water bodies and in the related catchment networks thus generating a serious risk of dissatisfaction in terms of demand (**water shortage**), temporarily putting the quality standards of the water bodies at risk.

The climatic scenario observed in the last twenty years as well as the future perspectives, along with the present framework usage foreseen in the river basin districts, provide elements to define situations of increasing criticality in terms of:

- ✓ **drought** (temporary reduction of water availability, for example in the absence of precipitations for a long period);
- ✓ **water shortage** (the demand for water is higher than the availability of sustainable water resources).

To identify
a new
equilibrium



The **Water Budget**, is the tool that ensures the balance between the availability of resources either available or deployable within a reference area and the needs for different uses, in compliance with the aforementioned criteria and objectives established by law, according to the indications given in the DM of 28 July 2004.



It constitutes the participatory tool for a correct management of water allocation to the various sectors of use, aimed at avoiding repercussions on the quality of the water bodies so to allow a sustainable water consumption for the purposes of achieving the quality objectives of the water bodies .



It is the mean to guarantee the respect of ecological flows, especially in relation to extreme events and future scenarios of climate change, among which, in particular, the prolonged drought situations as for the cases stated with Article 4 (6) of the Water Framework Directive.

SUSTAINABLE MANAGEMENT



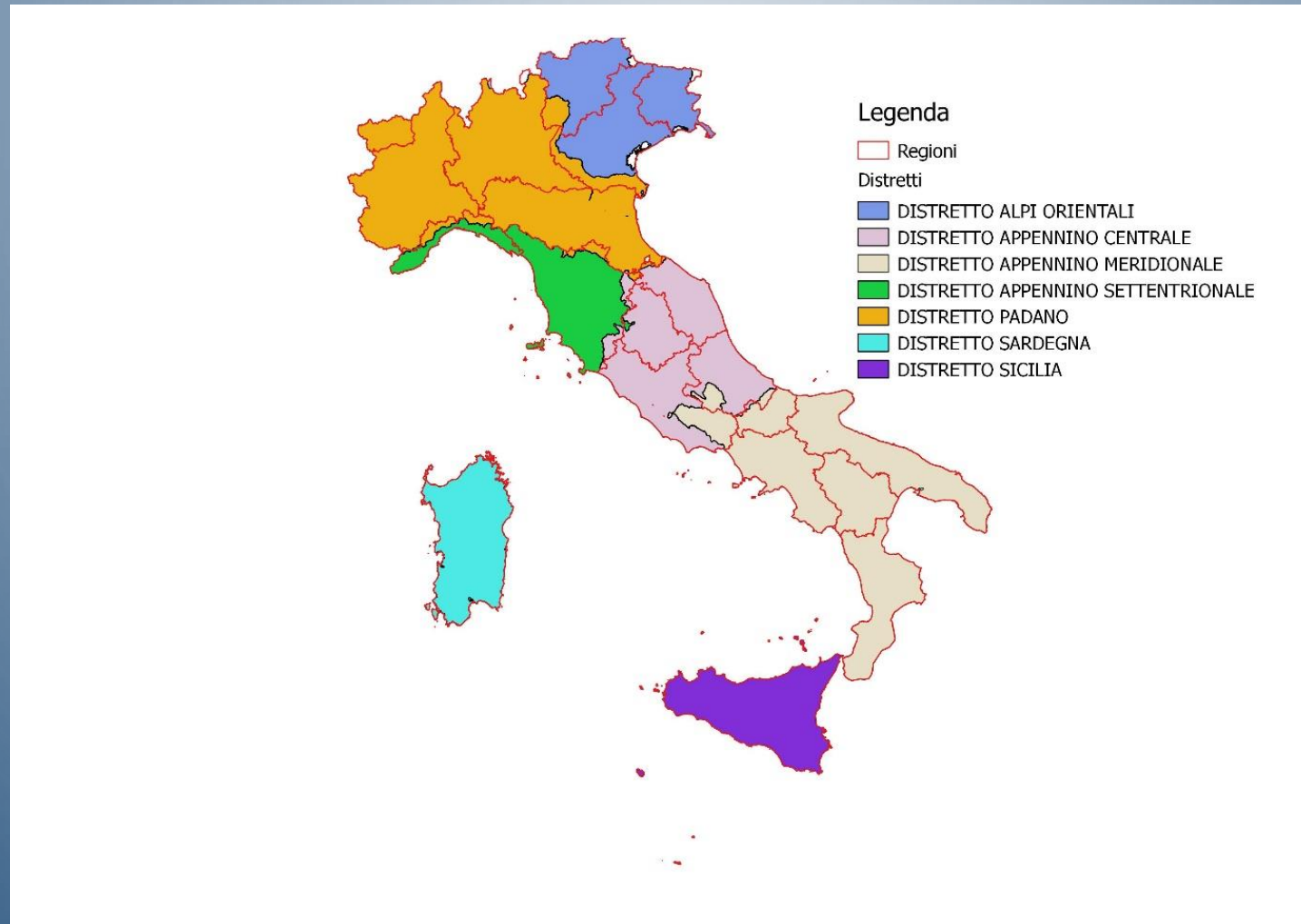
**Ministerial Decree
294 of October 25,
2016**

In 2016, with the establishment of the Italian Hydrographic District Authorities, a water resources *governance* system was created , capable to address the issue of the integrated management of water resources thus allowing to overcome the gaps in decision accountability and overlaps of water resources competences indeed rationalizing and simplifying the decision-making process, through a renewed role of direction, coordination and control of the Italian Ministry of the Environment.

In the new institutional structure of the Hydrographic Basins, ratified by Ministerial Decree 294 of October 25, 2016, the main instruments for the management of water resources are the Water Management Plans and the Flood Risk Management Plans.

These documents constitute the master reference for the entire management of water resources.

Italian Hydrographic Districts



2000/60/CE “*Water Framework Directive*”

- ✓ To facilitate a sustainable water use based on the long-term protection of available water resources.
- ✓ To prevent water crises by promoting the adoption of specific water saving strategies, while protecting water ecosystems.



To cope with critical issues such as drought or water shortage it is necessary to operate in terms of:

- ✓ proactive management of drought extreme events;
- ✓ integrated governance of the water resource;
- ✓ sustainable use of water resources;
- ✓ Removal of all obstacles limiting the availability and transparency of information and data;
- ✓ Strengthening the cooperation and dialogue among the subjects member of the water resource governance system within each individual river basin district.



Permanent Observatories on Water Uses in the Italian Hydrographic Districts

The European Commission has deemed the setting up of the Observatories to be a useful element for overcoming the criticalities found with regard to the application of the Water Framework Directive 2000/60/CE within the Italian Hydrographic Districts.



13th of July 2016

The Memorandum of Understanding for the establishment of the Permanent Observatories on Water Uses in the Italian Hydrographic Districts was undersigned by the competent Ministries, the National Civil Protection, the District Authorities, Regions and National and Private Public Authorities.



The activation of the Observatories is a specific measure of the District Water Management Plans,

adopted on the 3rd of March 2016 and approved with the Prime Ministerial Decree of the 25th of October 2016; they were set up precisely to implement, within the various territories, a new governance system, able to favour the optimal management of water resources and to address shortage crises in the name of cooperation, dialogue between the parties and attention to territorial specificities.

The Observatory implements, at District level, an integrated governance of the water resource, in order to regulate the withdrawals, to coordinate the uses and protect the natural water systems, applying, in its territory, the fundamental criterion of the uniqueness and integrity of the water resource. The latter is achieved both through the definition of procedures for the purposes of ordinary operation and the construction of technical tools to support the management of the water budget / balance (short and long-term forecasting tools, criticality thresholds, event evolution scenarios, etc.) concurrently promoting actions that encourage a constant updating and distribution of all data related to the availability and use of the water resource as well as to the need of the various sectors.

The target is to provide addresses for the regulation of withdrawals and uses and possible compensations to be made.



The Observatory also operates through a **Governing Body** for the management of drought events and, more generally, water shortages, ensuring an adequate flow of information, necessary for the assessment of the levels of criticalities in progress, their evolution , the withdrawals in place and ultimately for the definition of the most appropriate emergency actions for the proactive management of the event.



Definition of a proactive model of water crisis management

4 WATER CRITICALITY LEVEL



The values of the indicators of water crisis (flow rates, levels, volumes, accumulations, etc.) are below set threshold values or rather are such as to foresee the ability to meet the water needs of the natural and anthropic system in the periods of time and in the areas considered.

The activities of the Observatory are aimed at: monitoring the implementation status and evaluating the effectiveness of the actions envisaged by the district planning for the rebalancing of the water balance; implementing the actions stated in the Decree of the Ministry of Agricultural, Food and Forestry Policies of the 31st of July 2015 on the quantification of volumes collected for irrigation; identifying the actions aimed at reducing the impact of withdrawal pressures and droughts on water bodies and identifying and implementing the appropriate tools for the management of subsequent critical situations





The water demand is still satisfied, but the indicators show a negative trend, the weather forecasts show prolonged absence of precipitations and / or temperatures exceeding the ordinary values for the forthcoming period.

The Observatory assumes the role of Governing Body for the management of the water crisis with the purpose of implementing the actions defined in the Drought Management Plan of the Hydrographic District.



Medium water criticality

The state of criticality intensifies: the flow rates in the riverbed are lower than the average, the high temperature determines a water requirement higher than expected. The volumes accumulated in the reservoirs and in the tanks are not such as to guarantee hydropower, irrigation, industrial and environmental uses with standard delivery rates. Economic damage and reversible impacts on the environment are likely.

The Observatory maintains the role of Governing Body for the management of the water crisis, identifying the measures necessary to reduce the impact of drought, based on the contents of the Drought Management Plan. The actions identified for the medium water criticality scenario differ from those identified for the low water criticality scenario due to the greater intensity and frequency with which they are implemented, in order to prevent the establishment of a high criticality scenario.



Severe water criticality

All preventive measures have been adopted but a critical state that is not reasonably foreseeable prevails, in which the water resource is not sufficient to avoid damage to the system, even irreversible. There are the conditions for the declaration of *prolonged drought* pursuant to art. 4.6 of Dir. 2000/60 / EC or, in more serious cases, for the possible request, by the Regions affected, of the declaration of the state of national emergency.

The District Observatory provides informative / operative support in order to contribute to the definition of the decisions for the management of any emergency by the National Civil Protection bodies and the other competent Authorities involved

The Italian Law establishes that when there are no calamitous events such as drought or water crisis, the planning and management of water resources is delegated to the Regions, to the Local Authorities (Provinces and Municipalities), to the District Authorities, to the Scope Bodies and the Managing bodies.

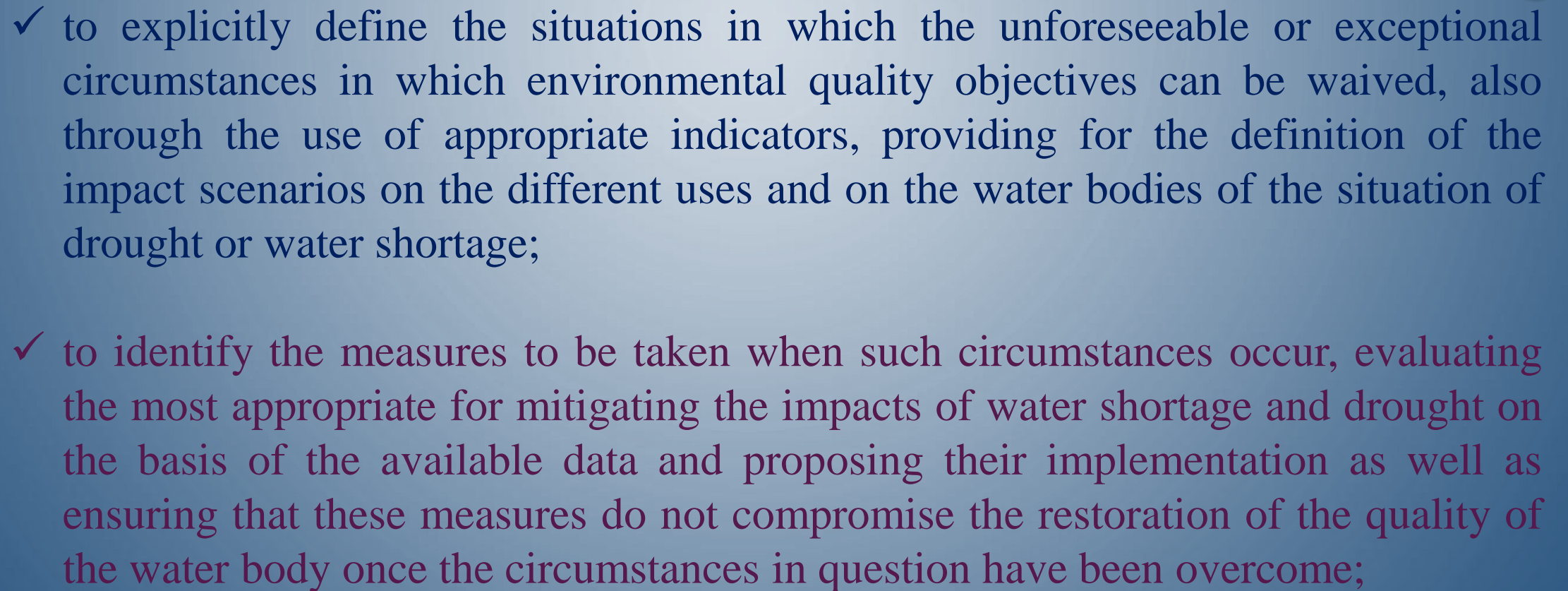


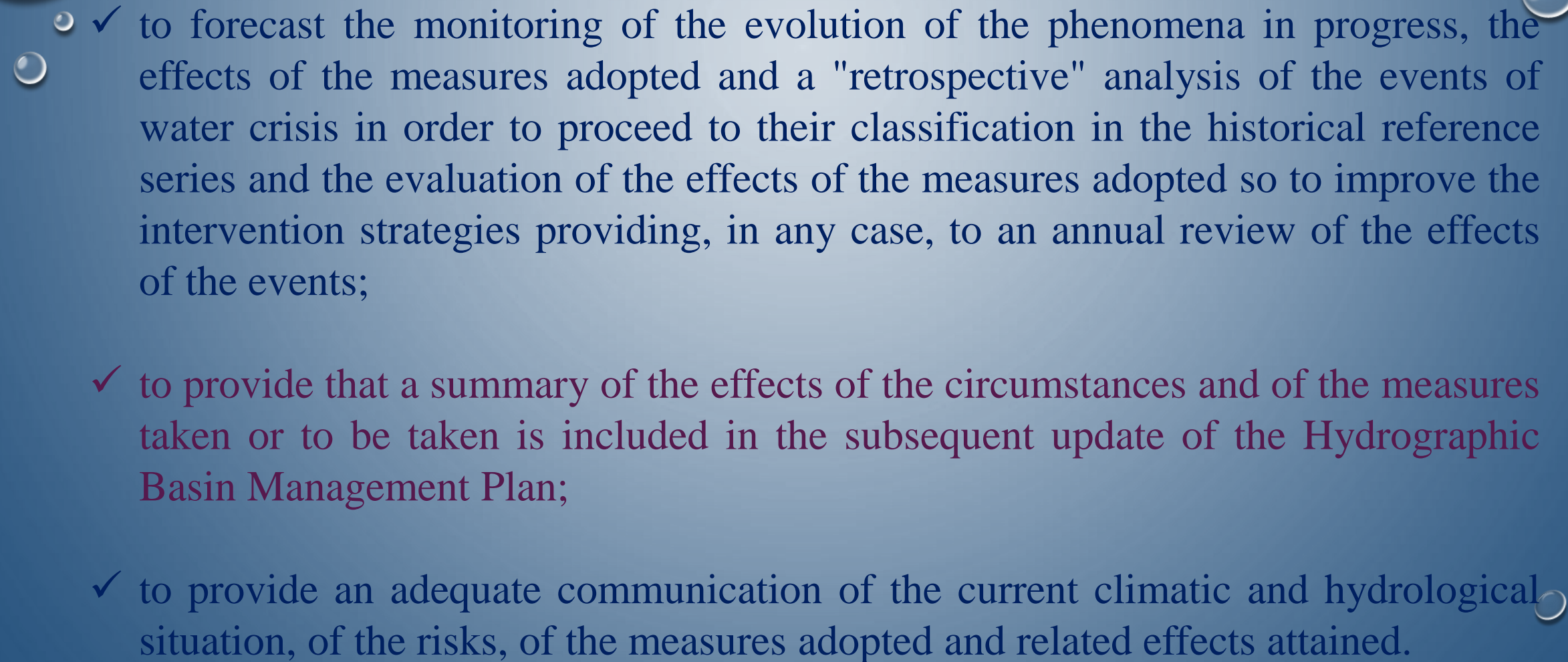


In the event of a water crisis, the National Civil Protection system is responsible for the management of emergency measures: this is mostly done after the declaration of the state of emergency by the President of the Council of Ministers and the issuance of specific Ordinances, with which funds, powers and extraordinary instruments are allocated with the scope of overcoming the emergency.

Nowadays the Observatories are particularly active: actions are focused on the optimization of the governance strategy, hereincluding the vital implementation and optimization of all suitable tools for the proactive management of future critical situations (e.g. hydraulic, climate and weather indicators etc.), with the highest level of environmental standard required by Directive 2000/60/EC and in particular by art. 4.6.

Following the recent approval of the resolutions of the CIP - Permanent Institutional Conferences, occurred on the 14th of December 2017, in each District the Observatories will be engaged:

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- ✓ to explicitly define the situations in which the unforeseeable or exceptional circumstances in which environmental quality objectives can be waived, also through the use of appropriate indicators, providing for the definition of the impact scenarios on the different uses and on the water bodies of the situation of drought or water shortage;
 - ✓ to identify the measures to be taken when such circumstances occur, evaluating the most appropriate for mitigating the impacts of water shortage and drought on the basis of the available data and proposing their implementation as well as ensuring that these measures do not compromise the restoration of the quality of the water body once the circumstances in question have been overcome;

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- ✓ to forecast the monitoring of the evolution of the phenomena in progress, the effects of the measures adopted and a "retrospective" analysis of the events of water crisis in order to proceed to their classification in the historical reference series and the evaluation of the effects of the measures adopted so to improve the intervention strategies providing, in any case, to an annual review of the effects of the events;
 - ✓ to provide that a summary of the effects of the circumstances and of the measures taken or to be taken is included in the subsequent update of the Hydrographic Basin Management Plan;
 - ✓ to provide an adequate communication of the current climatic and hydrological situation, of the risks, of the measures adopted and related effects attained.

For more information, please refer to:
our website *www.minambiente.it*
or the websites of the Italian Hydrografic Districts



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