GLOBAL WORKSHOP
ON BUILDING CLIMATE - RESILIENCE THROUGH
IMPROVING WATER MANAGEMENT AND SANITATION
AT NATIONAL AND TRANSBOUNDARY LEVELS
29 - 31 March 2021, hybrid
Palais des Nations, Geneva and online

Water Safety Plans and climate resilience
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WSP: route map towards the Italian implementation

**Directive (EU) 2015/1787**

**Directive (EU) 2020/2184**
- (DWD recast)

**Italian WSP guidelines**
- (ISTISAN 14/21)

Waiting for the transposition into the national legislation

- Decree of the Ministry of Health 14th June 2017
  - Repealing Directive (UE) 2015/1787 that modifies Annex II and III of the directive 98/83/CE on the quality of water destined for human consumption
  - Modified by the decrees of law 111/2001 and 31/2001

- in Gazzetta Ufficiale del 18 agosto 2017, n. 192

National training courses for Team leaders & trainers

WSP introduced by WHO in 2004 and re-proposed later
Risk analysis and climate change

Indicators for climate change assessment in a specific area

Local susceptibility to:
- flood
- water scarcity & drought events
- subsidence
- landslide
- fire

Scenarios of damage to water supplies & waterworks infrastructures

Risk matrix for the following hazards:
- Water service interruption
- Water shortages
- Turbidity increase
- Chemical contamination
- Microbial contamination

Specific actions to improve waterwork resilience
- Development of contingency plans
How to increase waterworks resilience against climate change

Frequent actions adopted by Italian water suppliers under WSP:

• Sustainable use of water sources
• WSP & SSP integration: reuse of treated wastewater as an alternative water supply for fountains, irrigation & industrial uses
• Reduction of water losses in distribution networks
• Activation of other water sources
• Alternative water supply (e.g., tank trucks, mobile treatment plants)
• Implementation of storage tanks or reservoirs
• Interconnection with other distribution networks
• Upgrade of river treatment plants using membrane filtration or other innovative processes
Vaia storm in North-eastern Italy (28-30 Oct 2018)

Vaia affected 5 local administrative authorities: the 2 Autonomous Provinces of Trento and Bolzano, the Veneto, Friuli Venezia Giulia, and Lombardy Regions.

Forests damage (tens of millions of trees fallen) and reservoirs persistent contamination after an extreme rainfall and flooding with peak winds of 200 Km/h.

Up to 720 mm of rain fell to the ground in just 3 days in the mountain areas.
Direct and indirect damages to waterworks caused by the storm:

- power failure in all water and sewer systems for 1-3 days
- shutdown of pumping and treatment stations without power generators
- fuel distributors out of service at the same time in the affected area
- interruption of the access routes to most of the plants for the presence of fallen tree logs
- interruption of the water service in some districts for half a day or more
- slight structural damage to few systems
- strong turbidity and presence of putrescible material in water abstracted from high-altitude springs & reservoirs
Remedial actions adopted under the contingency plan:

- rapid set up of power generators and fuel storages where necessary
- hydraulic disconnection of contaminated water supplies
- use of the water accumulated in the tanks immediately after the weather alert
- loading of some water tanks using tank trucks
- activation of pumping from downstream to upstream
- increase in analytical monitoring at water supplies and along the distribution system
- washing of contaminated distribution networks
Rainfall variability in Sicily

Standardized Precipitation Index

2018

Extreme humidity
Total rainfall: +36%

2017

Severe drought
Total rainfall: -18%

Average monthly rainfall

Reference period: 1921-2018
Rainfall variability in Sicily: what can a water supplier do?

- Optimized management of the reservoirs
  - Sustainable use, forecasting models

- Strong interconnection of water main pipes
  - Possibility of feeding the network from multiple water sources

- Water reuse
  - Reuse of treated wastewater as an alternative water supply for irrigation & industrial uses
Many thanks to the following water companies and institutions for their valuable contribution:

Thank you for your kind attention