Politecnico di Torino

Dams & Reservoirs DAY 2025

Water and Energy security for Europe

OPEN DAY ON DAMS



Dams and environment: engineering solutions for the future

TORINO , 28 maggio 2025

Dams in the Piedmont Region

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ITCOLD – II Concorso Fotografico

WHO WE ARE

Ing. Salvatore La Monica

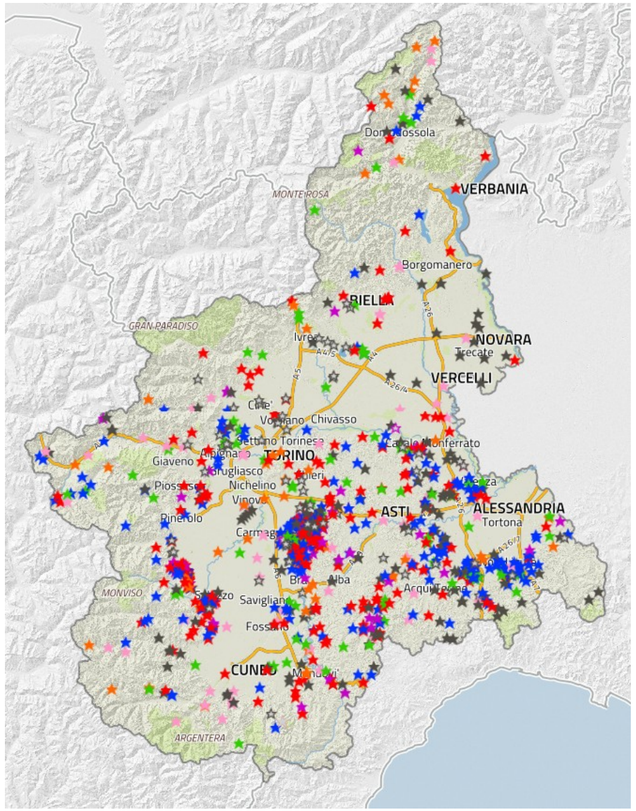
PIEDMONT REGION

Directorate for Public Works, Soil Defense, Civil Protection, Transportation and Logistics

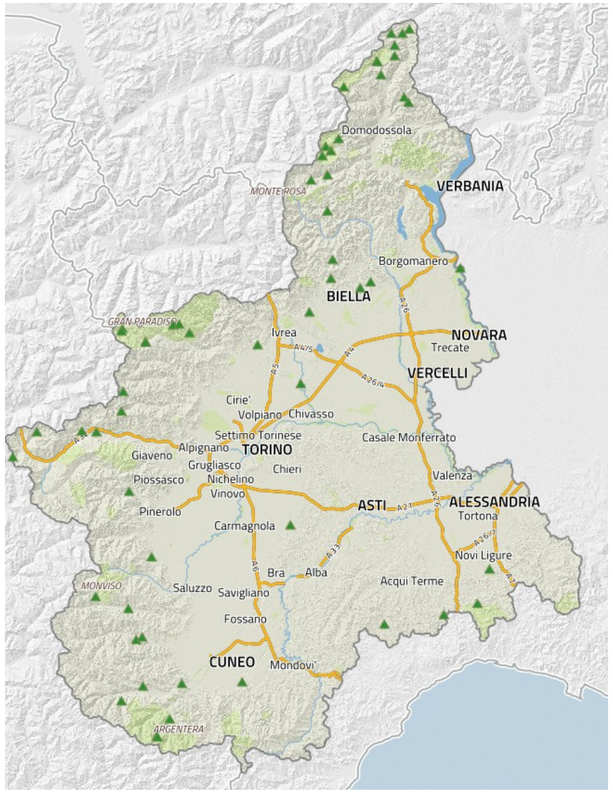
Soil Defense Sector

Dams Area

How many dams are there in Piedmont?



h < 15 m and V < 1 Mm³
About 800 small dams
(regional competence)

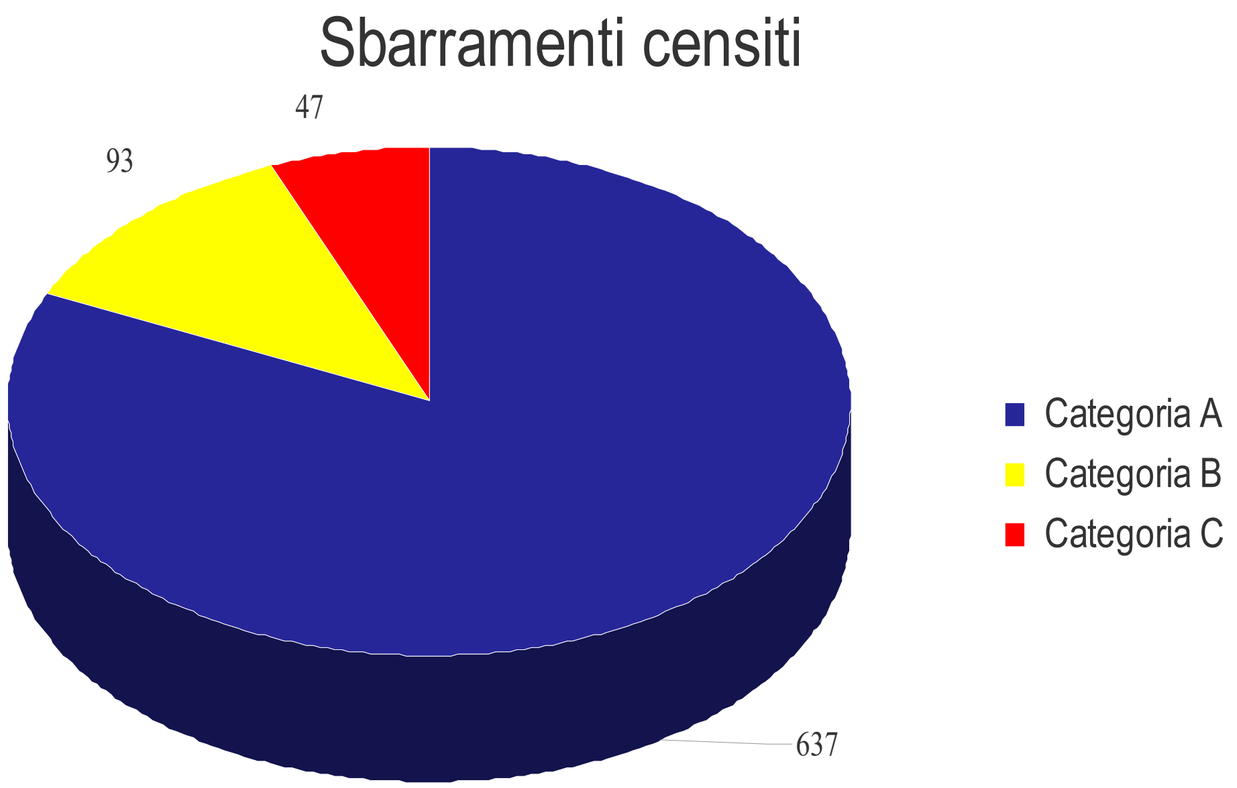


h > 15 m or V > 1 Mm³
About 60 big dams
(national competence)

WHAT WE DO

SMALL DAMS	BIG DAMS
Authorisation for the construction, operation, dismissal of dams and control over their proper management, from the point of view of hydraulic safety	----------
Drafting and/or approval of documents concerning safety (only for larger dams)	Drafting and/or approval of documents concerning safety (DPCs, Lamination Plans, Sediment management plans, PEDs)

WHAT WE DO
SMALL DAMS



Cat. A:
h < 10 m and V< 30.000 m³

Cat. B:
h < 10 m and
V = 30.000 – 100.000 m³

Cat. C:
h = 10 – 15 m or
V = 100.000 – 1.000.000 m³

WHAT WE DO
Different types of hydraulic barrier





Embankment dams

WHAT WE DO
Different types of hydraulic barrier



Small mountain dams

WHAT WE DO
Different types of hydraulic barrier



Concrete dams

WHAT WE DO
Different types of hydraulic barrier

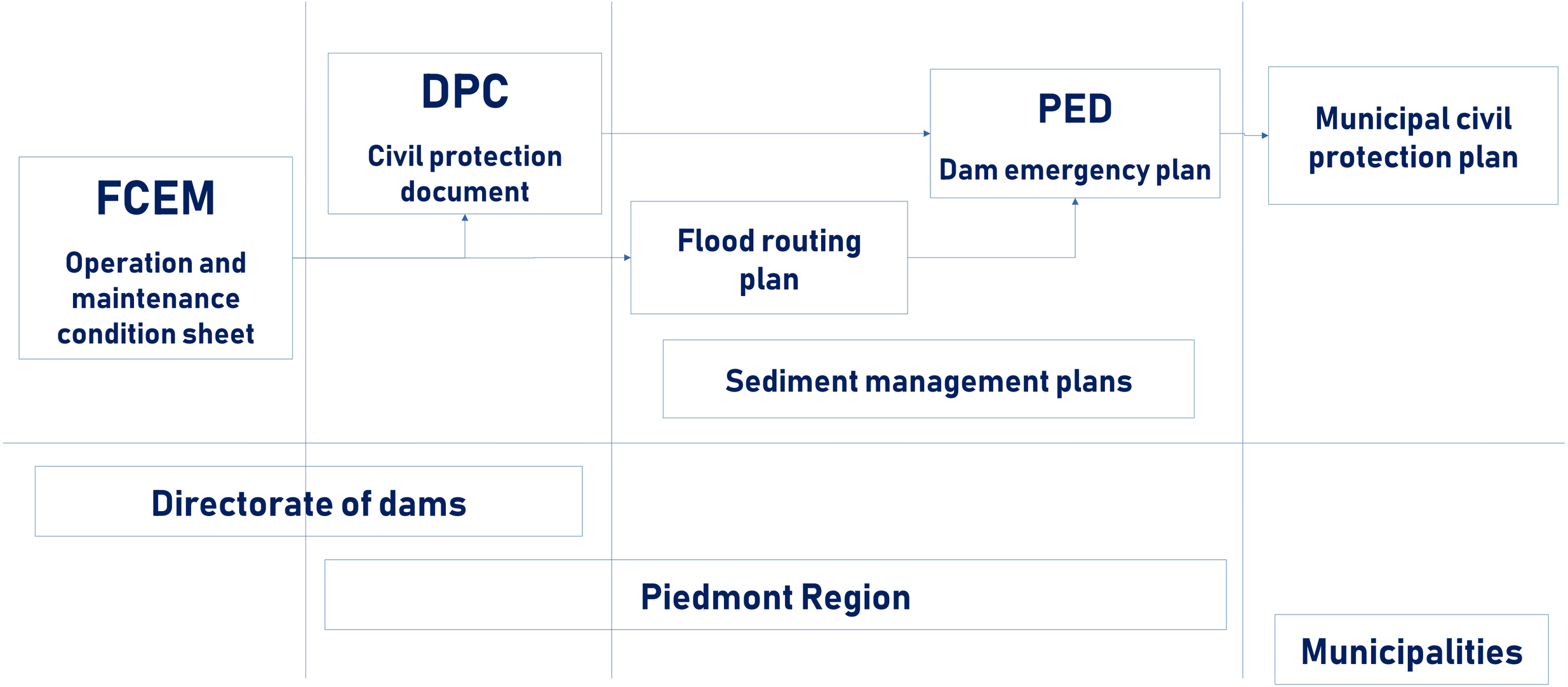


Barrage

Inflatable dams



WHAT WE DO
BIG DAMS



DPC

Civil protection document

The goal is to alert all subjects in advance so that they are ready to act in the event of dangerous situations.

It is written by the Directorate for dams in agreement with the region and is approved by the Government Territorial Office (prefecture)

DPC

Civil protection document

It defines the **alerting chain** of entities with civil protection tasks to be activated when the different alert levels occur.

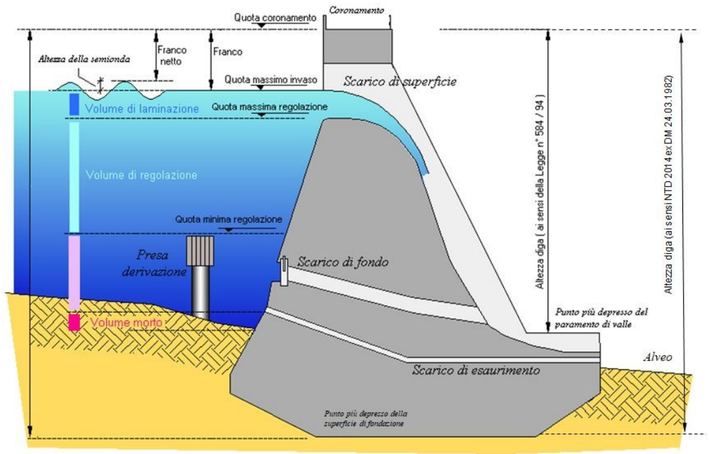


DPC

Civil protection document

It defines the alerting chain of entities with civil protection tasks to be activated when the different alert levels occur.

Dam risk: varies with rising water levels in the reservoir and the presence of structural damage.



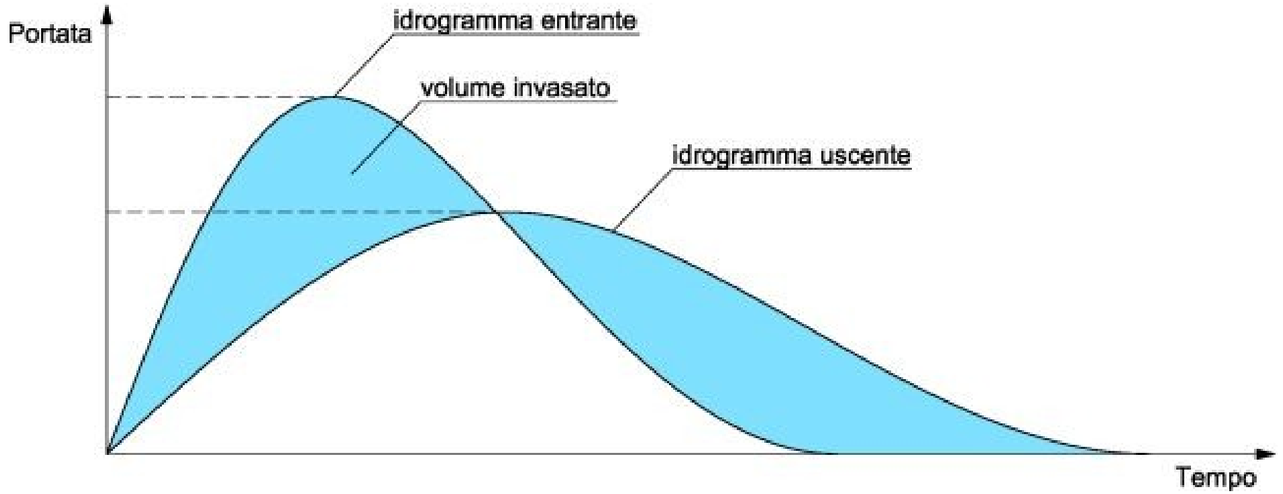
Hydraulic risk: varies as the flow rate released into the downstream riverbed increases.



The flood routing plan

The plan sets out dam management rules triggered by specific weather alerts, aiming to free up reservoir volume to reduce the flood peak and lower downstream flow rates.

It is written and approved by the region, with technical input and support from other bodies (Regional environment agency, Directorate for dams, etc.) and in agreement with the operator.

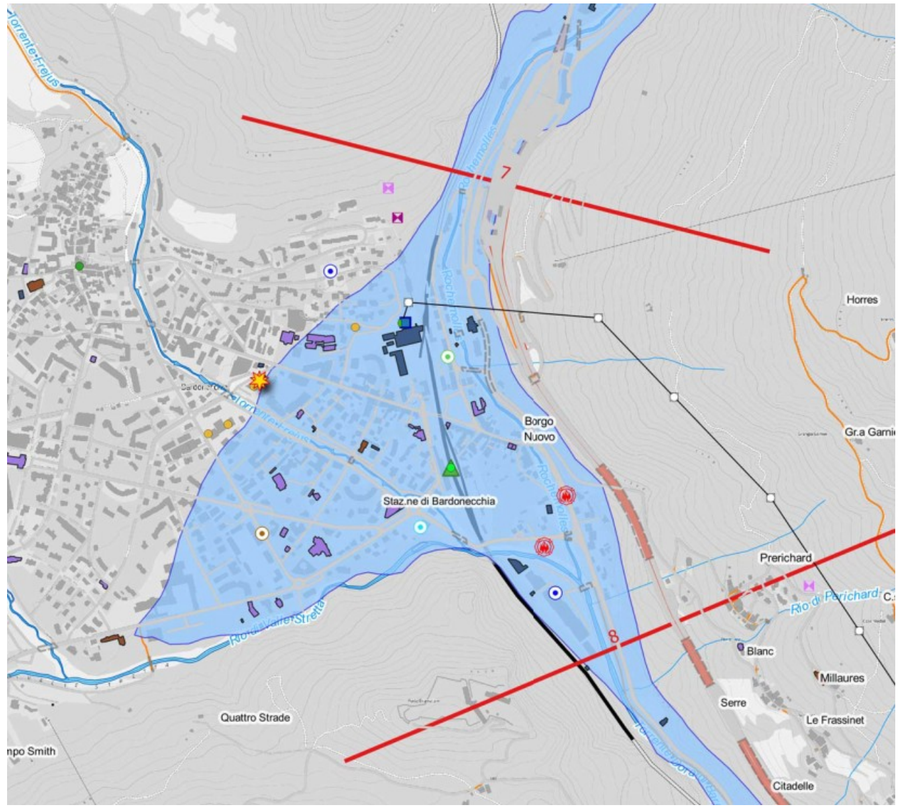


PED

Dam emergency plan

The plan describes the actions necessary to counter hazardous situations related to the propagation of a flood wave originating from

- the opening of the discharge organs
- the hypothetical collapse of the weir



It is written and approved by the region in conjunction with the Government Territorial Office (prefecture)

Sediment management plans

It defines how to carry out dam emptying, de-ballasting, and spillage operations in order to maintain reservoir capacity and safeguard both the quality of the stored water and the receiving watercourse



It is written by the dam operator and approved by the region after consultation with all relevant safeguard bodies





EXAMPLES OF OTHER ACTIVITIES

- Participation in European projects
  (BECCA: Ecologically sustainable and safe reservoirs designed for adaptation to Climate Change)

- Working groups on droughts

Thanks for your attention