



ACCADEMIA NAZIONALE DEI LINCEI

CONFERENCE

**Resilience of cities of art to hydrogeological catastrophes:
success and failure of the Italian experience**

ROME, 4 - 5 NOVEMBER 2014

FINAL STATEMENT

The rather complex subject discussed at this Conference arises from three major issues that remain unresolved in our country: the hydrogeological protection of our territory, the preservation and promotion of our cultural heritage and the issue of our institutional and administrative structure. Today, almost fifty years from the catastrophic floods of 1966 in Florence and Venice, these issues require careful consideration.

1. The problem of priorities

There is an evident disparity in how the State has tackled the problem of safeguarding Venice and its lagoon from high waters and that of protecting Florence from the flooding of the Arno River. In fact, the first case, declared to be of national interest in 1973 (law 171, art 1), led to the allocation of substantial funding for the cause. Such was not the case for Florence.

This asymmetry can hardly be justified on the base of *absolute values* such as the excellent artistic and cultural heritage of the two cities: indeed, in both cases we are dealing with cities which are poorly resilient to the devaluation of their artistic heritage. Neither can this choice be based on *relative values* such as the cost-benefit ratio of the interventions. The increasing costs of MoSE has increased the estimated cost-benefit ratio from a value of 0.98 to 1.1 depending on the amplitude of high tide (Fortini and Caporin, 2013). In the case of Florence, the estimated value of monetized damages (thus excluding losses of artistic and cultural heritage) is approximately 6 billion euro for an event which is deemed to occur every two centuries on average (Arrighi et al., 2014). The economic benefit derived from the reduction of such risk over a period of a few years would be sufficient to meet the costs of the main interventions required to safeguard the city.

Furthermore, economic science today offers many instruments to evaluate the benefits associated with safeguarding artistic heritage, which take into consideration not only their market value but also the intangible or non-market factors. This would permit the *ex-ante* evaluation of the benefits of investment (Mazzanti, 2003) for specifically defined target areas.

In the absence of these evaluations there is no other option but to base any choice on emergency factors. Emergencies produce the need for special laws, which then become the only legislative instrument with which to proceed.

2. The problem of jurisdictions

In dealing with problems involving wide-ranging matters such as environment, cultural heritage and territory, there cannot be a clear-cut division among the jurisdictions of various institutional bodies: the involvement of each of them, however, must depend on the size of the interests at stake. This suggests some observations.

2.1. Why are weather forecasts “regionalized” in Italy?

In the case of the recent meteorological events that affected Genoa (and, later, the lower part of Piedmont, as well as the territory of Grosseto), the meteorological forecasts clearly failed. This should not come as a surprise: it is important that public opinion be informed about the experts' opinion on this matter. Independently from the complexity of

the modelling instruments used, there are intrinsic limits of predictability for atmospheric phenomena due to their “chaotic” character. Such limits depend on the scale of the sample examined, and decrease progressively from a period of 10 to 15 days on a planetary scale to a minimum of one hour for convection cells similar to those observed during the event in Liguria. The efficacy of such models is further limited by the time necessary for data transmission and, more importantly, to perform all necessary calculations. Significant progress is being made in forecasting models, particularly regarding the reduction of the time factor to the order of a few hours by using techniques known as *nowcasting* based on direct observations of data from tele-pluviometric, radar and satellite meteorological networks (Buzzi and Davolio, 2014). Advance warning of few hours, however, is not sufficient to implement any large-scale emergency procedures but can be invaluable in safeguarding artistic heritage and human life (almost all casualties in catastrophic flooding are caused by problems of mobility).

Having established the above facts, however, we still have to interrogate ourselves on the issue of how our Country is equipped to face these crucial problems, which may only increase if the present climatic fluctuations continue to worsen. Firstly, we must ask why Italy has dedicated such little attention to higher education programmes and training in meteorology. Indeed, on one hand academic institutions must be blamed for disregarding the latter problem, on the other hand an improper role has traditionally been played by the meteorological service of the Italian Air Force. We should also wonder whether the absence of a national civil meteorological agency is still tolerable; this is a long-standing Italian anomaly when compared to most other developed nations. The size of the interests at stake dictates that these technical agencies should fall within the responsibility of the State. Indeed, technical agencies need numerical models, the access to the computational power necessary for complex simulations, the development and management of meteorological radar networks as well as the enhancement of the interaction between National agency and research centres to update their equipment. All these goals require funding, personnel and instrumentation, which cannot be duplicated across a large number of peripheral structures: the latest news is that the British Met Office has invested 97 million pounds in a supercomputer that is thirteen times more powerful than the one presently available to the Office and will likely allow for higher resolution forecasts.

The above functions, left unattended by the State, have been improperly devolved to Regional administrations which have entrusted enormous responsibility to a large number of peripheral meteorological centres, insufficiently equipped with instruments and trained personnel.

Such a use of the scarce available public resources should be carefully evaluated in the context of the ongoing spending review of our government.

2.2. *Who must deal with the governance of the Venice lagoon?*

The answer to this question is of great importance especially during the present most critical period for the city of Venice. Indeed, there are urgent issues at hand. The works designed to defend Venice from high waters (MoSE) must be completed and their management will have to be set up. A controversial proposal to dig a new canal (S. Angelo-Contorta) for ships to reach the *Stazione marittima* in Venice has been proposed. An equally controversial decision is under examination to build an offshore terminal off the port of Venice, to handle mainly oil and container traffic, with a submarine pipeline connection to Marghera.

Furthermore, the corruption facts, which have been recently disclosed, have humiliated the crucial role historically played by the Venice Water Authority since the Renaissance and have led to the governmental decision to suppress the Venice Water Authority (temporarily?). A bill is currently being debated at the Chamber of Deputies (n.

2487), which proposes, among other things, «(...) to devolve to the Municipality of Venice, and specifically to its Mayor (...), the responsibilities for the management of all water-related issues currently held by the Water Authority of Venice».

Although the management of the above diverse and complex issues definitely require involvement of local political institutions. Nonetheless, it must be stressed that decisions should arise from a transparent dialogue with technical agencies and under the effective control of the central government. In this respect, we feel that there is an urgent need to restore authority and responsibility of the Water Authority, under the direction of a new competent and transparent leadership.

3. The problem of legislative instruments: special laws?

The legislative tools employed for the protection of Venice and its lagoon have been the Special Law implemented in 1973 and its subsequent amendments. Recently, numerous proposals have been submitted to the Italian Parliament to reform the special law and delegate the government to reconsider the structure and the responsibilities of various institutions. It is then the appropriate time to examine the role played by the special laws for Venice, understand what has made them “special” and reconsider the actual need for such laws, ascertaining whether they have accelerated or slowed down the realization of works to protect and safeguard Venice.

Jurisprudence helps us to understand (Dugato, 2014) that special laws are successful when their “speciality” is based not so much on the object that is regulated, but on emergency reasons that persist for a limited amount of time. A special law can therefore contain diverse measures, but specific in nature; it cannot regulate an entire area permanently, i.e. without a defined time limit. A successful special law must not establish a differentiated and permanent system of rules for a city. It must just play the role of a “regulatory bridge”, which originates from a contingency but is designed such to evolve towards an ordinary urban legislative regime.

The laws regarding Venice are not per se ‘special’: they are rather laws pertaining to territorial planning and organisation. As such, they have not entirely failed, despite they have faced numerous institutional changes: firstly, a continually changing institutional scenario (Bassanini law, constitutional reform of Title V with subsequent return of the decisional power to the central government); secondly, a shift of the prevailing power from urban legislation to central laws regarding public works. This scenario has been complicated further by an increasingly evident scarcity of resources and an even more visible weakness in territorial planning.

On the contrary, waiving the application of an ordinary urban legislative regime is not a valid option except under real emergency conditions. Comprehensive provisions (rather than special laws) and administrative measures are sufficient to tackle contingent and urgent problems. The hydrogeological risk for Venice is not an emergency issue. It is simply part of its nature. To govern it, ordinary, albeit improved, regulations together with a better implementation of administrative measures are sufficient.

4. The problem of implementing protection measures

Analysis of the history of the implementation of structural measures for the protection of Venice and its lagoon, as well as of those concerning the Arno River, clearly reveals that our country encounters great difficulties in moving from the planning phase to the implementation phase. This is due to a number of factors.

4.1. *The low efficiency of the Italian judicial system*

There are many examples of works to protect important cities from hydrological hazards, whose realization has been interrupted by judicial investigations or appeals to Regional (TAR) or State Administrative Courts. The time required for Courts to decide on the merits of the disputes and issue a verdict is most often of the order of many years. Among the most striking examples is the case of the floodway project concerning the Bisagno river, the main river of the city of Genoa. The realization of an important part of the latter project concerning a major tributary (Fereggiano) started in 1992, but was interrupted in 1993 due to a legal action which ended in 2001. The low efficiency of the judicial system then led the Mayor of Genoa, Adriano Sansa, to the unwise decision to abandon the project. The Fereggiano overflowed in 2011 causing six deaths including two children.

4.2. *Should the provisions of the law on public contracts be waived in order to speed up procedures?*

This is a matter directly linked to what many consider to be the original sin of MoSE, namely the State's decision to grant the concession of studies, design and realization of the works to a group of public and private companies.

In fact, the special laws which concerned individual infrastructural projects where, over the past years, the provisions of the law on public contracts have been waived in order to speed up procedures, have most often resulted in corruption and bribery. The legal system currently in force certainly calls for procedure simplification with less provisions. This is an objective that the government seems to have placed on the agenda in relation with the forthcoming adoption of new European directives on public contracts.

Many other problems contribute to the delays in implementing the works: inefficiencies in public administration, poor coordination among the different levels of government involved, difficulties in reconciling the reasons of protection and conservation with those of territorial development. Lastly, the confusion that reigns in the debates on the measures to be adopted to reduce hydrogeological risk, prompted by information coming from so-called "experts" who too often are hardly experts.

5. Safeguard of cultural heritage and management of emergency

Reading the chronicle of the dramatic days following the flood in Florence, with the moving narratives of Ugo Procacci and Umberto Baldini regarding their heroic actions to save *in extremis* dozens of priceless art works (see special issue of magazine "*Il Ponte*": *Firenze perché*, 1966) is quite instructive. It suggests that a major step, needed to enhance the resilience of Florence, was a specific planning tool for the management of such emergencies in cities of arts. In 2013, MIBAC (the Ministry of Cultural Inheritance) responded to this need by issuing a directive on the *procedures for the safeguard of cultural heritage in emergencies arising from natural disasters*. This Directive was well accepted as it established a set of procedures that clearly distinguished the roles of (and established collaboration among) the various parties involved in the management of the disaster, in particular the local Superintendencies and the central Institutes for conservation (ISCR, ICRPAL, OPD). The positive effects of this Directive were experimented in the recent earthquake emergency that struck the Emilia region.

Nonetheless, the need to develop a culture of communication between institutions and citizens remains. In particular, the information transmission chain for preventive measures must rely on the judgment, availability and traceability (especially outside

working hours) of those who are part of the process. In addition, existing structures for prevention and management of emergency for each of the Museum Centres must be adapted to the recent legislative enactments, which establish autonomous management policies for museums.

Finally, we emphasize that the resilience displayed by Florence following the 1966 disaster, can be measured by the capacity expressed by the city to repair most of the damages caused to its cultural heritage and its ability to turn problems into opportunities for growth. This is due to the excellence of our country in the field of art restoration. The Florentine school of restoration, with the establishment of the 'Opificio delle pietre dure', has always operated along three lines. The first, operative, has focused on its main mission, namely the actual restoration of art works; the second line, scientific, has concentrated on research for the development of innovative diagnostic methods and techniques, in collaboration with the top universities and the National Research Council (CNR); the third line, educational, consists of the highly valuable training courses offered to young restorers.

We denounce that this excellence of our country risks disappearing due to the gradual personnel reduction in the central and local departments of the Italian Ministry of Cultural Heritage and Tourism (MIBACT).

6. Development of art cities and the role of water

When addressing the issue of resilience of art cities to hydrogeological disasters, the key question is what model of development to adopt and what role water can play. Of course, this role has evolved over the centuries both in Venice and in Florence, with an evident asymmetry though. The city of Venice, since Cristoforo Sabbadino, has based its power and its development on the lagoon and the sea; in the city of Florence, the old uses of the Arno waters (water supply, energy supply to run mills and mint, harvesting of sand by the "renaioli, connecting port to the sea, defence from enemies through weirs) have practically disappeared. Nowadays, water supply and the use of the river as a resource for recreational and leisure activities, are the only remaining positive functions, whilst the danger associated with the risk of flooding is possibly enhanced. Hence, Florence relation to its river is markedly different from Venice relation to its lagoon.

The development of Venice has always been a challenge for the resilience of the fragile lagoon ecosystem. The diversion of rivers debouching into the lagoon, as well as the construction of jetties at the lagoon inlets (which started in the 800s and were completed in the 900s) were indeed challenges for the Republic of Venice as, later, was the industrialization of Marghera. With the process of de-industrialization and consequent decline of Marghera, the challenge today remains the transition from an industrial model to a post-industrial model based on enhancing tourism and on the conservation and reorganization of port activities. This is a very delicate choice. Indeed, further enhancing tourism would pose a major problem of 'sustainability'. Moreover, decisions concerning the future of Venice Port are not a purely Venetian problem. They should rather be seen in the context of the National system of harbours. A National Port Plan is in order. Such a Plan would resolve the issue of the new and costly deep-sea port for container ships and tankers (cost estimated at 3 billion euro) to be built in the Adriatic not far from Venice lagoon. Is this choice compatible with the existence of the port of Trieste that performs similar functions and is connected via pipelines to refineries in Austria and Germany?

On the contrary, as far as Florence is concerned, the debate has so far focused only on flood prevention and protection, neglecting the eco-system services that the Arno River, if secured and restored, could provide to the development of the city.

7. The development of art cities and the institutional system

The development of historical cities depends, even more than for other cities, on the efficient day-by-day performance of the comprehensive institutional system at the local level, the ordinary rules regulating it and the apparatus responsible for their application. Any dysfunction will have a boomerang effect, enhanced by the overload of demand typical of historical cities. Hence, its solution, except during emergencies, lies in the ordinary regime rather than requiring special or exceptional laws.

This especially applies to some issues that are general in nature but decisive for the matters dealt with herein: avoiding legislative automatism by restoring some degree of discretion (and consequent accountability) of administrations; the statutory rules regulating technical agencies; the necessarily transparent dialogue that must characterise different functions (and responsibilities) in the fact-finding phase prior to the final decision.

Furthermore, the time has come to confer cities full autonomy in terms of functions and governance. This must be done in keeping with the general principles laid down by law and through *ad hoc* "statutes" approved by central Government. In particular, autonomy must be enhanced in the processes of raising and using resources, establishing direct relationships with national agencies in charge of developing national networks (roads and railways, energy and communication) and organising and managing services to be suitably calibrated in each specific situation.

This tendency has partly been implemented in metropolitan cities, although it should be kept in mind that the most important historical cities in Italy, like Venice, Florence, Rome and Naples, have already acquired this status. In any case, we stress that we are referring to autonomy, i.e. the capacity of cities to establish stable administrative forms of government and procedures that fit the context in which they operate, taking on their respective direct responsibilities. On the contrary, special or exceptional legislative regimes are centralised and exhibit various shortcomings. Firstly, they add rigidly predetermined procedures to the ordinary (and unchanged) tools, relying on a special apparatus inevitably committed to self-preservation. Moreover, they disperse responsibilities between a far remote centre and local administrations which are left with a reduced and uncertain role.

The second, more specific, side of the problem concerns the local actions instrumental to the development of historic cities. This involves three aspects.

Firstly, there is an indissoluble connection between cultural heritage and landscape as well as between landscape and environment: this interdependence is essential for the hydrogeological protection of the territory. On the other hand, the above connection suggests that protection necessarily implies exploitation and promotion. Moreover, it emphasizes the need to integrate cultural heritage and environmental protection policies. The time has come to include exploitation and promotion in the Cultural Heritage Code concerning landscapes, which is still only protection-oriented. Finally, without further delay, an urban planning legislation accounting for the above needs must be adopted.

Secondly, relations need be established at local level with peripheral branches of MIBACT, with a degree of autonomy such to plan actions of general interest: concerning, in particular, historical centres, restoration, maintenance and promotion. Further measures, essential for the management of art cities, are necessary. They

include: planning of events and of the growing influx of tourists (including the possibility to limit their number under certain conditions), the regulation of commercial activities, a proper application of the city tax, communication activities (both external and internal) and, finally, security measures for the protection of the cultural heritage.

At last, the third action concerns the transversal function of culture which, especially in art cities, may also be a driving force for sustainable development and a common thread for policies in specific sectors. However, this would imply overcoming an approach based on single projects and see the issues in a strategic perspective, where it is the process which makes up a substantial part of the added value and its ability to generate resources. A most notable example, in this respect, is the case of the European Capitals of Culture.

A correct use of the funds available for this purpose under the European Commission H2020 (the funding programme is currently being defined), is an opportunity not to be missed.

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