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**The Situation in Italy**

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**Abstract:** This paper describes the situation of water resource management in Italy. It will first provide some significant data about water, its availability and its use in the national territory and discuss the constitutional, regulatory and organisational framework of the Italian legal system. The analysis will then address the different legal components of water resource management and its relative legal framework. In this sense, water resource management is a complex activity, covering not only management of water services but other aspects, including ownership, planning and programming, procedural requirements, qualitative and quantitative protection and economic-financial aspects.

**Keywords:** water, water resources, river basin district, river basin, management, water planning, water domain, quantitative protection, qualitative protection, water concessions, soil protection, water services, water costs.

## **I. Introduction**

### **1. Water resource management: preamble**

In Italy the general situation relating to water resources is characterised by a mean availability that is sufficient but is progressively decreasing; a non-satisfactory qualitative level, above all with respect to drinking uses; the presence of stress factors both on a qualitative and quantitative level; and a complex territorial organisational division.<sup>1</sup>

More specifically with respect to water resource management, the situation of the Italian legal system is characterised by a relationship between water and law that is not always coherent.<sup>2</sup> Traditionally, legal regulation of water in different historical periods, apart from being influenced by availability and needs, has reflected the evolution of the public interests of the time,<sup>3</sup> and has been conditioned by the classification of water into different legal categories, either traditional or not. The main interests over public waters are the defence of the territory and population against water, the use of water resources for civil and production ends and the qualitative and quantitative protection of water heritage.<sup>4</sup> With respect to its classification, water is public property, more specifically, State property. It is therefore a resource, but also a vital need, an environmental asset

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<sup>1</sup> GORIA, Alessandra, LUGARESI, Nicola (2004) p. 266.

<sup>2</sup> LUGARESI, Nicola (2006) p. 94.

<sup>3</sup> GORIA, Alessandra, LUGARESI, Nicola (2004) p. 279.

<sup>4</sup> DE BELLIS, Carlo (1984) p. 11.

and a traditional and cultural value,<sup>5</sup> which (as particularly demonstrated in international law) transcends the purely economic aspect, reaching ethical and spiritual levels.<sup>6</sup>

On a legislative level, there is no consolidated text on water in the Italian legal system; the different facets of water resources management are disseminated in different regulations. The first question we must ask and which the Italian legislator still has not seriously answered, is what is understood by “management” of water resources. The term “management” appears very often in regulatory provisions, but it does not explain the elements of the management activity. Section III, Part 3 of the Legislative Decree 152/2006 is entitled: “Water Resources Management”, but this section, after stating some general principles on water matters, is mainly – if not exclusively – concerned with water services and their management. Water resource management goes much further.

## **2. Data related to water resources**

In Italy there is no complete, homogeneous and updated repertoire of data related to water resources; nor has there been a continuous and complete flow of data to a single authority responsible for compiling, preparing and publishing it. There is no need to underscore how this deficiency constitutes the first and significant obstacle for water resource management.

The Italian territory is divided into eight River Basin Districts (which, after the last reforms, group together the 11 former National River Basins, the 18 Interregional River Basins and the other regional river basins) and into 92 Optimal Territorial Areas (91 of which are currently established) to manage water services. Optimal Territorial Areas do not, however, always refer to the river basin as a higher territorial parameter of reference.<sup>7</sup>

The availability of water resources for different uses – civilian, production and also environmental – has progressively decreased. Among the most relevant stress factors are the following. First, the considerable anthropisation of the territory. Italy has a high population density (more than 59 million residents in 2006, 200 inhabitants per km<sup>2</sup>, compared with an EU27 average of 115)<sup>8</sup> which continues to grow above all due to the immigration phenomenon. Second, the intensive livestock and agricultural exploitation (more than 5 million tons of fertilisers marketed in 2006)<sup>9</sup>. Third, a non-homogeneous productive system from the territorial viewpoint, characterised in some areas by a considerable proliferation of small and medium enterprises (in 2005, 65

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<sup>5</sup> LUGARESI, Nicola (1995) p. 1.

<sup>6</sup> LUGARESI, Nicola (2000) p. 5; LUGARESI, Nicola (2003) p. 53.

<sup>7</sup> CO.VI.R.I. (2008) p. 5.

<sup>8</sup> ISTAT (2008) § 12.

<sup>9</sup> APAT (2007) p. 62.

enterprises for every 1000 inhabitants, compared with an EU27 mean of 40)<sup>10</sup>, which may find it very difficult to adapt their activities to environmental requirements. Finally, the chronic inefficiency of water services which, although they are subject to rationalisation processes, still guarantee unsatisfactory qualitative levels (in 2005, only 70% of the water injected into the network reached the end users)<sup>11</sup>. The poor legislative and administrative frameworks (with special reference to the control and monitoring systems) have also contributed to worsening the situation, creating inefficiency in the public management policies of the national water resources.

On a qualitative level, within a system that divides the quality of water bodies into five classes (SECA Index – Ecological State of Watercourses, based on the incorporation of chemical and biological data), the latest available data from the year 2006, reflects a quality level that is at least sufficient in 78% of the rivers (5% “optimum”; 38% “good”; 35% “sufficient”), compared within an insufficient state in the remaining 22% (16% “scarce”; 6% “very bad”). Although it is not possible to refer to homogeneous data given that the number of stations monitored is different in each Region and Macro-Area, the situation between the three Macro-Areas (northern Italy, central Italy, southern Italy and larger islands) is not too different. With respect to lakes (SEL Index - Ecological Status of the Lakes, in which five classes are also distinguished) at the least, a sufficient quality is recorded in 74% of cases (5% “optimum”; 29% “good”; 40% “sufficient”), compared with an insufficient status in the remaining 26% (23% “limited”; 3% “very bad”). The situation of groundwater is more negative. Continuing with a system divided into five classes (SCAS Index – Chemical Status of Groundwater, based on anthropic impact and hydrochemical characteristics) the 2006 data reflects a quality status belonging to the first two classes (high or good hydrochemical characteristics) in 34% of cases, a good quality state but with signs of worsening in 14% of cases, and a status of lower quality in 28% of cases (whilst the remaining 24% is represented by resources submitted to non-existent or insignificant anthropic impact but with special natural hydrochemical characteristics)<sup>12</sup>.

Based on this data the situation does not appear optimal although it does not seem disastrous either (groundwater being in a more critical position). The data on the classification of surface water that can be used for drinking is less reassuring. These waters are classified by the Regions into four categories depending on their physical, chemical and biological characteristics. The monitoring carried out during the period 2002-2004 indicated that of the 494 surface water bodies for drinking uses, 81 were situated in category A1 (waters that require a simple treatment), 265 in A2 (waters that require normal treatment), 113 in A3 (waters that require advanced treatment) and

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<sup>10</sup> ISTAT (2008) § 45.

<sup>11</sup> ISTAT (2008) § 102.

<sup>12</sup> APAT (2007) p. 53.

35 in subA3 (waters whose parameters are over the permitted limits, but which can be used in exceptional circumstances). The most worrying aspect is the tendency towards qualitative worsening and above all the increase of the waters in category subA3 compared to the previous three years.<sup>13</sup>

On a quantitative level, Italy has more potential resources than the European mean, as the average rainfall (1950-2000) is 950 mm per year in Italy, compared with 650 mm per year in Europe.<sup>14</sup> The natural surface resources are estimated at 155 billion cubic metres a year and the total available resources at 50 billion cubic metres a year (that is, which could be used if the existing infrastructure was efficient).<sup>15</sup>

Either due to climate reasons or the inefficiency of water services, Italy holds the top position in the European classification of water abstraction per inhabitant with an average, according to 1999 data, of 740 m<sup>3</sup> per year per inhabitant (more than 2000 litres per day) compared with an EU15 mean of 610 m<sup>3</sup> per year (less than 1700 litres per day).<sup>16</sup> With respect to the distribution of water consumption, Italy follows a more “Mediterranean” model than “community” model. In fact, on a national level, the civil sector absorbs 19% of the water resources (EC level: 14%), the agricultural sector, 48% (EC: 30%), the industrial sector, 19% (EC: 10%) and the energy sector, 14% (EC: 46%).<sup>17</sup> What, in the last instance, distinguishes Italy from the European mean is the percentage of aquifer abstractions, which is around 23% (EC: 13%), and which basically goes to civil uses.<sup>18</sup> The fact that there are uncontrolled nonpoint source catchments causes highly negative consequences, one of the most important being the salinisation of waters abstracted near the coast which entails less agricultural productivity in those areas, thus creating a vicious circle.

Over the last fifteen years, the availability of water resources in Italy has considerably decreased: faced with a drop in rainfall of 10-15%, surface seepages have decreased by 30% caused by the intensified water demand.<sup>19</sup> In addition, there has been a strong territorial diversification by Macro-Areas: 65% of the total is abstracted in the north (and 78% with respect to the availability of the same area), 15% in the centre (52% of the availability), and 20% in the south and in the larger islands (96% of the availability).<sup>20</sup>

But the quantitative problem, not so serious in absolute terms *per se*, worsens not only due to the qualitative problems mentioned above, but also due to another type of consideration. First, a

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<sup>13</sup> APAT (2007), p. 70.

<sup>14</sup> APAT (2008).

<sup>15</sup> A.V.R.I.R. (2006) p. 29.

<sup>16</sup> A.V.R.I.R. (2006) p. 40.

<sup>17</sup> A.V.R.I.R. (2006) p. 43.

<sup>18</sup> A.V.R.I.R. (2006) p. 40.

<sup>19</sup> APAT (2007) p. 51.

<sup>20</sup> Ministry of the Environment (2002) p. 257.

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limited use of treated wastewater is seen. The re-use of these waters is, in fact, considerably lower than the European mean, although projects in this regard are increasing. In 2005, the approval of treatment systems amounted to 80% in sensitive areas and 77% in normal areas (compared with 82% approval of drainage networks in sensitive areas and 78% in normal areas).<sup>21</sup> Secondly, the chronic inefficiency of the water services must be highlighted, due both to infrastructure and management problems. Water losses in the distribution network (which include both “real” losses, that is quantities of water injected in the network, but dispersed in the distribution networks before they reach the delivery point, and “apparent” losses, that is, the quantities of water used, but not billed) reach an average of 38-45% in Italy (with peaks of 50-60% in southern Italy), compared with much lesser losses in other European countries (20-22% in France, 15-16% in Germany and the United Kingdom).<sup>22</sup>

## **II. Constitutional, regulatory and organisational framework**

### **1. Distribution of legislative power between the State and the Regions (and Autonomous Provinces)**

Italy is a country with a unitary legal system of regional autonomies. Despite the constitutional review carried out by Constitutional Law 3/2001, which increased the level of autonomy of the Regions, and the subsequent attempts to establish forms of federalism, Italy, for the moment, cannot be considered a federal state, but a state with a regional base, within which a principle of equity is acknowledged between the different territorial levels.<sup>23</sup> State reform in a federal sense, or, in any case, the accentuation of the federal aspects (from the fiscal viewpoint) of the legal system is one of the basic points of the current Government’s program following the April 2008 elections.

With respect to the constitutional legal system in force, Italy – one and indivisible – recognises and fosters local autonomies and practices the broadest administrative decentralisation (art. 5, Const.). Municipalities, Provinces, Metropolitan Cities and Regions are autonomous entities with their own statutes, powers and functions (art. 114.2, Const.), but of all of these only the Regions (and the Autonomous Provinces of Trento and Bolzano) have legislative power. Of the Regions, Friuli-Venezia Giulia, Sardinia, Sicily, Trentino-Alto Adige and Aosta Valley enjoy

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<sup>21</sup> APAT (2007) p. 73.

<sup>22</sup> Ministry of the Environment (2006) p. 17.

<sup>23</sup> CARINGELLA, Francesco (2007) p. 700.

special conditions of autonomy (art. 116.1, Const.), regulated by the Statutes approved under the Constitutional Law. Following the 2001 constitutional reform, other Regions can be recognised as having other forms of autonomy, through laws of reinforced procedure, based on agreements with the State (art. 116.3, Const.).

The 2001 reform has also changed the relationship between the State and Regions insofar as the exercise of the legislative power is concerned, making the Region a body that has residual competence (art. 117.1, Const.). Art. 117 of the Constitution now contains a list of issues where the State has exclusive legislative power (art. 117.2, Const.) and a list of issues where the State and the Regions have joint legislative competence (art. 117.3, Const.), the other issues being relegated to exclusive regional legislative competence (art. 117.4, Const.). The regulatory power is exercised by the State only in matters of its exclusive legislative competence, unless delegated to the Regions; in other issues, the regulatory power is of regional competence, except for the regulatory power of Municipalities, Provinces and Metropolitan Cities to regulate the organisation and development of the functions that are granted to them (art. 117.6, Const.).

The lists in art. 117 of the Constitution, which determine the issues that are the exclusive legislative competence of the State and issues of joint competence between the State and Regions, do not contemplate water resources. This does not mean that the protection, use and management of water resources will fall within exclusive Regional competence. In fact, the list of issues of State legislative competence includes “protection of the environment, of the ecosystem and cultural assets”, which, if not interpreted too narrowly, would include the vast majority of the water resources regulation. On the other hand, the list of issues of joint legislative competence includes issues that have an influence on – or are influenced by – the environmental regulation and the water resources regulation. These are issues expressed at a high level of abstraction and therefore of difficult delimitation. Reference is made to issues such as health protection, civil protection, large transport and navigation networks, production, national transport and distribution of energy and recovery of cultural and environmental assets.

Thus, the framework derived from the constitutional provisions is complicated and does not, *a priori*, permit the identification of certain distribution rules for legislative competence which can be applied to each case. In this regard, it is the constant intervention of the Constitutional Court, which both the State and the Regions continuously resort to due to supposed reciprocal invasions of competence, which defines who the legislative competence corresponds to in connection with specific regulations.

The situation of Regions of Special Statute is somewhat different, but no less complicated. Exclusive legislative power is no longer just a privilege of these regions, but in the Statutes

(approved under the Constitutional Law and still not amended to be harmonised with the introduction of the reform) a principle of residuality of State legislative competence is still in force. Thus, the Statutes generally include a list of issues with exclusive Regional legislative competence and another list of issues of joint legislative competence, whilst the State has an (exclusive) residual competence for issues not contemplated.

Constitutional Law 3/2001 also contains a “greater favour” clause for Regions of Special Statute, by virtue of which, upon the adaptation by the Statutes of these Regions, the provisions of this law that provide broader forms of autonomy than those already attributed, are applied (art. 10). In any case, the enumeration of legislative competence contained in the Statutes (and which differ for each Statute) creates different “substantial” criteria to those contained in art. 117 of the Constitution, as generally water is mentioned, but in different areas.<sup>24</sup>

Basically, the Regions of Special Statute enjoy reinforced legislative autonomy compared with the other Regions and above all a more specific autonomy with reference to problems related to water resources. This does not mean that interpretation questions do not arise before the Constitutional Court, both regarding similar aspects to those that can arise with the other Regions and the conceptual delimitation of specific matters contained within each Statute.

The difficulty in establishing clear limits between Regional and State legislative powers (with reference to Regions of Special Statute and other Regions) has compelled the Constitutional Court to pronounce on more than one occasion. The first decisions on the issue, prior to the 2001

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<sup>24</sup> The Region of Sicily has exclusive competence in “public waters, insofar as they are not the subject of public works of national interest”, but also in matters such as “agriculture and forests”, “sanitation”, “urban development”, “public works, except for the large public works of preferably national interest”, “saline lakes”, “fisheries”, “tourism”, “landscape protection” (art. 14, Const. Law 2/1948). The Region also has joint legislative competence in issues such as “public hygiene and health” and “provision of public services” (art. 17, Const. Law 2/1948). The Region of Sardinia has exclusive competence in issues of “exercise of public rights of the Region on public waters” (and “saline lakes”), but also in issues such as “agriculture and forests”, “small sanitation works”, “public works of exclusive interest of the Region”, “urban development”, “mineral and thermal waters”, “fisheries”, “saline lakes”, “tourism” (art. 3, Const. Law 3/1948). The Region has joint legislative competence in issues of “medium and large sanitation works”, “electricity production and distribution”, “provision of public services”, “public hygiene and health” (art. 4, Const. Law 3/1948). The Region of the Aosta Valley has exclusive competence in issues of “public waters used for irrigation and domestic uses” and “mineral and thermal waters”, as well as in issues of “agriculture and forest”, “livestock, flora and fauna”, “small sanitation works”, “urban development”, “fisheries”, “tourism and landscape protection” (art. 2, Const. Law 4/1948). The Region can adopt legislative integration and application standards of the State legislation related to “regulation of the use of public waters for hydropower use”, “hygiene, health”, “provision of public services” (art. 3, Const. Law 4/1948). In the Trentino-Alto Adige Region, it is the Provinces of Trento and Bolzano, and not the Region, that have significant legislative competences in the water sector. In fact, both provinces have exclusive competence in issues of “mineral and thermal waters”, “fisheries”, “aqueducts and public works of provincial interest”, “direct provision of public services”, “tourism”, “agriculture, forests”, “livestock and fishery”; “sanitation”, “hydraulic works of the third, fourth and fifth categories” (art. 11, Const. Law 5/1948). Both provinces have joint competence in issues of “use of public waters, excluding the large diversions for hydropower ends” (art. 12, Const. Law 5/1948). The Region of Friuli-Venezia Giulia has exclusive competence in issues of “agriculture and forests”, “sanitation”, “fisheries”, “aqueducts and public works of local and regional interest”, “tourism”, “urban development”, “mineral and thermal waters” (art. 4, Const. Law 1/1963). The Region has joint competence in issues of “use of public waters, excluding large diversions”, “regulation of public services of regional interest”, “hygiene and health”, “prevention and emergency work due to natural catastrophes” (art. 5, Const. Law 1/1963).



constitutional reform, focused their attention on the notion of environment, defined as a constitutional value, a fundamental right of the person and a fundamental interest of the community (Decision 217/1987 of the T.C.), but also as a unitary intangible asset, with several components to be protected, even separately (Decision 641/1987 of the T. C.). Returning to the definition of environment, the Court has recently stated that the environment, as a system which must be considered in a dynamic manner, is a vital asset with a material and complex nature, the regulation of which also includes the protection of the equilibrium among the different components (Decision 378/2007 of the T. C.).

After the constitutional reform of 2001 which not only transformed the relationship between the State and Regions by establishing a closed number of issues of state competence in art. 117 of the Constitution but also exclusively entrusted the protection of the environment and of the ecosystem to the State, these decisions take on greater importance. They contribute to defining the scope of the distribution of the competences between the State and Regions with reference to water resources management, which, although it does not appear in art. 117 of the Constitution, forms a substantial part of the environmental issue.

In this regard, the jurisprudence of the Constitutional Court that interprets Constitutional Law 3/2001 did not focus its attention on the on the cross-sectional character of the environment itself. The new formulation of art. 117 of the Constitution does not forbid the Regions from legislating on a series of issues related to the environment within the parameter of general principles established by State law. The Constitutional Court has rejected the idea that the protection of the environment is identifiable as an “issue” in the strict sense and that, therefore, there is a sphere of State competence that is rigorously circumscribed. On the contrary, the jurisprudence establishes an unavoidable link with other interests and competences, including those of Regional attribution (Decision 407/2002 of the T. C.). The “cross-sectional” character of the protection of the environment means that different competences are expressed, which may even be Regional (Decision 398/2006 of the T. C.). Thanks to the definition of the protection of the environment as a constitutionally protected “value”, rather than just a simple “issue”, the State, in agreement with that value, can establish uniform protection *standards* in the entire national territory. This then has an impact on the legislative competences of the Regions (both of Special Statute and others) (Decision 536/2002 of the T. C.).

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## 2. Regulatory evolution: reform of environmental and water resources law

Water regulation has often been developed via parallel channels which sometimes tend to unavoidably cross over but do not actually form an integrated system. Thus, there is a regulation on the possible destructive effects of waters, as well as another – qualitative and quantitative – water protection regulation, another on water services, and another on water concessions. Managing water resources not only means managing water services, but it also means considering all the aspects that influence the availability, protection and use of water. The evolution of the regulation and of the water policies shows the presence of contradictions caused by historical and contingent factors which have not been totally surpassed.<sup>25</sup>

In the Italian legal system, the first post-unitary regulation (Law 2248/1865, Annex F) was concerned with water, especially the execution of public works to defend against it and the natural phenomena that it causes. The public interest in the exploitation and use of the water resources became increasingly important after the industrial development process and agricultural demands made people aware that water is a production means, generating an increase in its value, as well as a greater interest by the public powers. Consequently the water regulation, as from Law 2644/1884, progressively dissociated itself from public works regulation, attempting to favour exploitation of the resources.

Through partial reforms (D. Lgt. 1664/1916 and 2161/1919), always enacted bearing that objective in mind, a pathway was followed which led to the publication of a “consolidated text” (Royal Decree 1775/1933) mainly devoted, insofar as water was concerned, to the instrument of public water diversion concession. The single text of 1933, which also dealt with some aspects of energy, opened with a definition (teleological, in the way in which it referred to the attitude of water to serve uses of general public interest) of public waters and therefore implicitly distinguished private waters. From the legal viewpoint, the new productive demands meant that waters previously considered private were to be considered public, unless there were of no use for the public interest. The 1933 regulation, through the use of the concession instrument, established a public type control and adjustment, the aim of which was the complete exploitation of national water assets. The concession of public water diversions thus became the main legal instrument to achieve the economic and productive objectives. However, it very soon showed its incapacity, outside the planning and programming mechanisms, to properly protect the general public interest.<sup>26</sup>

For some decades, there were no regulatory developments worthy of mention. Driven by community law, new legislative developments arose, the main objective of which was protection, clearly qualitative at first (Law 319/1976) and later quantitative (D. Leg. 152/1999). Law 183/1989, which was principally concerned with soil protection, also incorporated aspects of

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<sup>25</sup> GORIA, Alessandra, LUGARESI, Nicola (2004) p. 271.

<sup>26</sup> GRECO, Nicola (1983) p. 41.

qualitative and quantitative protection, in the reconsideration of the territorial, organisational and planning order of the sector. D. Leg. 275/1993 amended the concession system, with special reference to procedural aspects, to make it more efficient and impartial. Law 36/1994 established provisions of principle relating to the public nature of all waters, the hierarchy between uses and the application of solidarity criteria in the use of the resource. It regulated water services, introducing the concept of Integrated Water Service. D. Leg. 152/1999, which replaced the previous regulation on qualitative protection issues, incorporated quantitative aspects, unlike the previous one, in an attempt to adopt a more coordinated approach that took into account the other, recently enacted, regulations, related to soil defence and water services. Thus, after the reforms driven by Law 183/1989, the water resources regulation varies considerably, although gradually and always by sectors: water concessions, soil defence, water services and qualitative and quantitative protection.

Furthermore, after the enactment of the EC Water Framework Directive (Directive 2000/60/EC) the need has been felt to reclassify and organise the entire regulation. This has occurred in the form of more general reform of the environmental law, the Law of Delegation 308/2004 and with the subsequent D. Leg 152/2006 (incorrectly referred to as the “Environment Code” or “consolidated text of the environment”, and subsequently amended on several occasions). The declared objective is to achieve a codification of the environmental law, which was not totally satisfied, either due to the absence (total in the first instance; partial after its first reforms) of a “strong” part dedicated to the principles, due to the non-inclusion of some environmental regulations, or due to the unsatisfactory incorporation of sector regulations that affect the same object.

With reference to the water sector, although water is no longer considered as a simple asset, but as an exhaustible resource, to be managed and protected in an integrated fashion, a real coordination of all the standards on the issue is required. On the one hand, the regulation of the concessions is outside the D. Leg. 152/2006 (especially in Part Three, dedicated to water), which basically adopts R.D. 1775/1933 (although considerably amended by the more recent sector regulations). On the other hand, the Part 3 does not affect the revision of the other regulations on water (Laws 183/1989 and 36/1994 and D. Leg. 152/1999); rather it presents the sum of them. There are no common general principles or common definitions or the establishment of a unitary organisational framework, or other shared standards. The only common aspect is in the title of Part Three (“Standards on soil defence and to combat desertification, protection of water against contamination and water resource management”). This Part is divided into three sections, devoted respectively to soil defence and to desertification (Section I), water protection (Section II) and water resource management (Section III).

The regulation of the water sector continues, therefore, along parallel lines. The 2006 reform partially and timidly amended the previous legal regime, above all under the umbrella of the community law, and in particular of Directive 2000/60/EC. But, although now the different regulations on soil, water protection and water services are contained within one legislative document (or better said, in one “part” of it), the coordination is only formal. The different aspects of regulation are still distinct in the structure of D. Leg. 152/2006. It is not correct, either, to define the Section on water services as a Section dedicated to “water resources management”, because, if so, it would have an especially reduced field. Water resources are managed at the same time as their quantity and quality are protected, productive use is regulated and the population is protected from the possible destructive effects of the watercourses. It is not sufficient to have introduced the “integrated water service” concept; what is necessary now is to introduce the much broader concept of “integrated water resources management”. The D. Leg. 152/2006 may, in this regard, and according to a benevolent interpretation, present a first step towards this integration. But, the truth is that, according to a more realistic interpretation, we have missed the opportunity.

### **3. Organisational aspects: territorial entities and other organisations**

Generally speaking, according to the constitutional dictate, the administrative functions are attributed in the first instance to the Municipalities, unless, in application of the principles of subsidiarity, differentiation and appropriateness and related to the scope of interest and the possibility of exercising those functions efficiently, they are attributed to Provinces, Metropolitan Cities, Regions and State (art. 118.1, Const.). This does not mean that the vertical principle of subsidiarity necessarily displaces the exercise of functions downwards, but that a system that included the functions of regional attribution is replaced with a system that establishes the tendency for it to be the entities “closer” to the citizens that act, but only if this guarantees a rational administrative action and an effective decision capacity.

This is the perspective from which the regulation on the distribution of competences in the legislation of sectors related to water resources must be interpreted, even in the light of art. 3.5 of the D. Leg. 152/2006. On the one hand, this article enables the Regions to adopt more restrictive ways of protecting the environment, whenever required by special situations in their territory and provided that it does not establish any arbitrary discriminations or unjustified procedural unfairness; on the other hand, it assigns to the State the task of intervening in questions that affect environmental interests when the objectives of the action foreseen cannot be satisfactorily reached by the lower territorial government levels.

Furthermore, the organisational regulation has become more complicated due to the presence of other territorial type distributions, not based on the traditional political and administrative circumscriptions, but – at least that is the tendency – in hydrographical aspects: River Basin (and now River Basin District) in the soil defence regulation; and Optimal Territorial Area in the regulation on water services. The truth is that they are not just simple territorial divisions, as new bodies have been constituted in them with their own organisations and administrative responsibilities, such as the River Basin Authority (and now the River Basin District Authority) and the Area Authority.

D. Leg. 152/2006, which as we have seen includes the majority of the fundamental regulations on water resources (soil defence; qualitative and quantitative protection; and water services, but with the regulation of the water concessions still contained basically within R.D. 1775/1933), has made no effort to harmonise the standards on competences. There are no common regulations, rather, each of the regulations mentioned, contained in separate sections of Part Three of D. Leg. 152/2006, contains an autonomous distribution of the competences between the different levels of territorial government (and between the new authorities) that is separated from the rest.

The regulation related to soil defence and combating desertification (Part Three, Section I, D. Leg. 152/2006) distributes the competences on a central level between the Prime Minister, the Committee of Ministers for actions in the sector of the soil defence (art. 57, D. Leg 152/2006) and the Ministry of the Environment (art. 58, D. Leg. 152/2006), identifying ~~in~~ the State-Regions Conference as the body that must coordinate the most important issues between the State and Regional level (art. 59, D. Leg. 152/2006). From the technical viewpoint, the Technical Services and Environment Protection Agency (APAT) exercises functions related to the cognitive and informative activity (art. 60, D. Leg. 152/2006). When the provisions of the Constitution apply, and especially the principle of vertical subsidiarity, functions not carried out at State level rest with the Regions (art. 61, D. Leg. 152/2006), and the definition of the competences of the local bodies (Municipalities, Provinces, their consortiums or associations and Mountain Communities) and of the other subjects involved (sanitation and irrigation consortiums, mountain basin consortiums and other entities of public law) (art. 62, D. Leg. 152/2006). River Basin District Authorities have also been set up in each River Basin District. These are non-economic public entities that replace the River Basin Authorities (although in the first application and of doubtful community legitimacy, the use of the latter was extended, with the relative postponement of the effective establishment of the former) and which operate according to criteria of efficiency, effectiveness, economy and publicity. The Permanent Institutional Conference, the Secretary General, the Technical-Operative Secretariat and the Service Operative Conference are bodies of the River Basin Authority. River Basin District

Authorities are submitted to the management and coordination powers of the Permanent Institutional Conference (the body, as mentioned above, of the actual River Basin Authority) with the participation of representatives from several Ministries, interested Regions and the Civil Protection Department (art. 63, D. Leg. 152/2006).

The regulation on water protection (Part Three, Section II, D. Leg. 152/2006) stipulates a different organisational approach, less articulated and above all only in broad outline. The State is to exercise its own competences through the Ministry of the Environment, with the exception of the competences of the Ministry of Health on hygiene and health, for the Regions and Local Administrations to carry out their own tasks and functions within the framework of the constitutionally determined competences and for the sanitation and irrigation consortiums to engage in carrying out environmental protection and water sanitation actions. Each article of the section provides a more analytical determination of the specific attributions in the field of the different functions and the different procedures (art. 75, D. Leg. 152/2006).

The regulation on the water services follows a partially analogous outline. The State exercises its own competences through the Ministry of the Environment, and the Regions exercise their functions within the framework of the constitutionally determined competences, with special reference to the government regulation of the actual territory. With respect to the local bodies, the functions of their competence related to the Integrated Water Service are carried out through the Area Authority, a public body constituted in each Optimal Territorial Area and delimited by the competent Region, where local entities have compulsory participation (art. 148, D. Leg. 152/2006).

Consequently, the organisational framework that arises from analysing the legislation currently in force is especially complex. D. Leg. 152/2006 has just reproduced the general framework of the previously applicable regulations related to the distribution of administrative competences, without any type of coordination. Entering into further detail, we see that there are more public individuals that interact in the field of these regulations. On the one hand, we find the traditional territorial entities, which operated according to a modified distribution of competences model by virtue of the 2001 constitutional reform. On the other hand, we have organisations created on the model of Anglo-Saxon *authorities*, but without adopting all of their features, with special reference to their level of autonomy, and which, among other things, directly emanate from the actual territorial entities.

### **III. Water resources management**

#### **1. Ownership of the resource: water as public property**

The management of an asset does not necessarily presuppose its ownership, but ownership and management are interrelated. This principle can also be applied to water resources. The ownership of water and the exercise of the rights related to it have always had a functional value with respect to management.

Art. 1.1 of R.D. 1775/1933 subordinated the public nature of waters to their capacity to serve a public use of general interest, the definition of which was subsequently included in art. 822 of Civil Code, 1942. This did not just have a teleological nature but also an “open” nature, typical of the notion of public water, capable of covering all the waters, whose use, at a certain moment in history, in connection with the economic situation and experience, technological development, the people’s needs and the requirements of public powers, could be acknowledged as of public interest.<sup>27</sup>

Decades later, as water was progressively acknowledged as a limited, contaminated and an increasingly demanded asset, and private waters had been reduced to a mere exception, the important thing was no longer to specify the content of the public property, but to find the possible solutions to the water crisis through new governmental, protection and management mechanisms. In this regard, the general declaration of the public nature of water, included in art. 1 of Law 36/1994 was a relevant novelty (although more from a principled and dogmatic perspective than from the substantial perspective). The main effect, after exhausting the “theoretic stabilisation” phase has been to definitely transfer attention from the question of ownership, which only had a functional value, to the question of management and protection.<sup>28</sup>

The general reserve of each water resource included in Law 36/1994 was later confirmed by D. Leg. 152/2006, by virtue of which all the surface waters and groundwater belonged to the State. State ownership of the waters is considered to be closely related to the nature of the waters and to the relative fundamental principles.<sup>29</sup> Water, a resource to be managed according to solidarity criteria, safeguarding the expectations and rights of future generations to enjoy the same resources and integral environmental assets, cannot cease to be public property, understanding this property in a functional sense with respect to the underlying public interests. State ownership of water is basically the foundation for the regulation of its management, aimed at the rationalisation of uses, the limitation of waste, fostering the re-use of the resources and the protection of the water assets, with preference for drinking and civil uses (art. 144, D. Leg. 152/2006).

The objective of the legislator is to guarantee the most complete and rational use of water resources, of any type and origin. Leaving marginal cases (rainwater and groundwater for domestic

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<sup>27</sup> CERULLI IRELLI, Vincenzo (1988) p. 1.

<sup>28</sup> LUGARESI, Nicola (2006) p. 94.

<sup>29</sup> LUGARESI, Nicola (1995) p. 41.

uses, *ex art.* 163 D. Leg 152/1999) to one side, in some cases, the action of the individual is allowed and promoted if it may lower the demand of water as an increasingly scarce resource. However, in all other cases, express consent by the the competent authorities is necessary, issued according to the forms prescribed by the applicable regulation. Within those procedures, the competent authorities can adapt the specific provisions of the concessions and authorisation so that the public interest is better served (for example, by imposing additional obligations or duties). The general declaration of the public nature of water is in practice a more rigid instrument for water management, subject to fewer dispute possibilities.

Thus, public waters are public assets, a category that traditionally includes those assets which, based on the combination of a subjective criterion with an objective criterion, belong to public bodies and are functional with respect to the pursuit of public interests.<sup>30</sup> The peculiar regime of public waters is not so much the consequence of the question of ownership but of the question of management. Therefore, it is not so important for water to be public insofar as it is of the State, “property” of the State, as conferring the regulation of its use on the State to guarantee its more rational management and its direct or indirect accessibility, by the community.

Consequently, the Constitutional Court rejected the question of constitutionality that had been put forward (under articles 2, 3 and 42.3 of the Constitution) with reference to the general declaration of the public nature by art. 1.1 of Law 36/1994. The illegitimacy was excluded insofar as the public importance of water was considered to be modified, given that uses are permitted, in any case, without licence or without a diversion concession, provided that a general interest cannot be recognised (Decision 259/1996 of the T. C.). The aspect of use, and therefore of management, is the central and basic element, whilst the aspect of ownership, which in this case is precisely the object of controversy, has a more formal and functional nature.

**2. Planning aspects: planning of the River Basin District and sectorial planning**

Regulations related to water resources “included” in D. Leg 152/2006 also contain different regimes for the planning and programming of actions. This leads to the possible overlapping of more planning acts which, although all related to a specific regulation, are mutually influenced by their relationship with water resources.

The River Basin District Plan that replaces the River Basin Plan after setting up the River Basin Districts is, like its predecessor, the basic reference plan, and it is regulated in Section I, Part III of D. Leg. 152/2006. The River Basin District Plan, defined as a territorial sector plan and as a

<sup>30</sup> CASSESE, Sabino (1969) p. 260.

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cognitive, regulatory and technical-operational instrument, has an especially broad aim. Thus it covers the preservation, defence and recovery of the soil, as well as the correct use of water, based on the physical and environmental characteristics of the interested territory. The contents of the Plan are analytically specified, and cover cognitive, programming, regulatory, economic, financial and applicative aspects. The provisions of the River Basin District Plan are immediately binding on public bodies and private individuals, provided that the plan declares such a feature. The River Basin District Plan also constitutes parameters to be respected for urban planning. The territorial plans and regional programmes in agricultural and environmental matters must adapt to the River Basin District Plan the year after its approval, and the Regions will pronounce action provisions in the planning sector (art. 65, D. Leg. 152/2006).

The preparation of the River Basin District Plan (which can also be prepared and approved for sub-basins and for functional sector fragments) requires an especially complex procedure. It is prepared by the River Basin Authority based on criteria established by the Permanent Institutional Conference, submitted to strategic environmental evaluation, adopted by the Permanent Institutional Conference, and finally approved via decree of the Prime Minister and heard at the State-Regions Conference (art. 66, D. Leg. 152/2006).

Until the approval of the basin plans, the River Basin District Authorities must adopt abbreviated district plans for hydrogeological planning, which will identify the hydrogeological risk areas and relative protection measures. The River Basin District Authorities also approve urgent plans aimed at eliminating situations of high hydrogeological risk, placing priority on areas where a state of emergency has been declared. They are accompanied by urgent intervention programs to reduce the hydrogeological risk, urgent emergency plans that contain measures to protect the integrity of the people affected and infrastructure adaptation plans (art. 67, D. Leg. 152/2006).

Subsequently, River Basin District Plans are implemented through three-yearly intervention programmes, adopted by the Permanent Institutional Conference. The aim of these programmes is to carry out ordinary maintenance interventions, provide water policing, internal navigation, flooding and quick water intervention services, as well as study, instruction and auxiliary activities (art. 69, D. Leg. 152/2006).

The water protection regulation, contained in Section II, Part III of D. Leg 152/2006, includes other planning instruments, such as Management Plans and Water Protection Plans, closely linked to the basin planning.

A Management Plan, defined as internal organisation of the River Basin District Plan, has been adopted in each River Basin District. It is therefore an abbreviated plan of the latter (art. 117, D. Leg. 152/2006). Management Plans describe hydrographical aspects, significant impacts and

monitoring activity; they list environmental objectives; they include a synthesis of the economic analysis, the measures adopted, the controls carried out and the information and public consultation initiatives and progresses obtained (Appendix 4, Part A, of Part III of the D. Leg. 152/2006).

Water Protection Plans, defined as a specific sector plan, are prepared in agreement with the objectives on a district scale, and according to the action priorities defined by the Basin Authorities, after consulting with the Provinces and Area Authorities. The Protection Plan is adopted by the Regions, after consulting with the Provinces and after adopting possible protection measures. It is then transmitted to the Ministry of the Environment and the competent River Basin District Authorities, which will express a binding opinion for subsequent regional approval. The necessary measures for the integrated, qualitative and quantitative, protection of the water system are the main aim of the Protection Plan. It also has many other contents: results of the cognitive activity; environmental quality objectives with a specific destination; lists of water bodies and areas that demand specific protection measures; sanitation actions; economic analysis (art. 117, D. Leg. 152/2006).

Water basin planning must also be incorporated into the Protection Plans, under the principle that the quantitative protection of the resource will assist in obtaining quality objectives. The aim of water use planning is to permit sustainable water consumption and reach the water equilibrium defined by the River Basin Authorities, bearing in mind the needs, availability, minimum vital flow, aquifer recharge capacity and use the resource is destined to (art. 95, D. Leg. 152/2006).

Protection Plans are completed later by programs of measures adopted by the Regions and submitted to the approval of the Basin Authorities (art. 116, D. Leg. 152/2006), which require additional measures of which quite an extensive indicative list is provided (Appendix 11, Part III of the Legislative Decree 152/2006).

Finally, the regulation on water services, contained in Section III, Part III of D. Leg. 152/2006 foresees the Area Plan, comprised of four parts: recognition of the infrastructure (which identifies the actual state of the infrastructure to be entrusted to the Integrated Water Service administrator); program of actions (which determines the extraordinary maintenance works and the new works to be carried out); managing and organisation model (which defines the operational structure by which the administrator guarantees the user the service and the execution of the program of actions); and the economic-financial plan (which is organised into assets, income statement and balance sheet and must guarantee obtaining economic-financial equilibrium or, in any case, respect for the principles of efficiency, effectiveness and economy of the management). The Area Plan is prepared by the Area Authority and transmitted to the competent Region and to the Ministry of the Environment for pertinent verification (art. 149, D. Leg. 152/2006).

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The possible overlapping of plans, only included formally in one single legislative document, but really the fruit of different approaches and regulations, is the greatest obstacle for the water resources planning and programming framework. Planning, based on true, reliable and updated data, should be the basis for administrative activity in general and for the managing activity in particular. But the proliferation of plans, prepared according to different procedures and by different departments, does not favour a unitary and coordinated approach to the water problem.<sup>31</sup> For the legislator, the River Basin District Plan (like the previous River Basin Plan) must be a kind of “superplan”, where all the typical territorial, environmental and economic issues of the water sector would converge. The continuous proliferation of plans and programmes, though referring to the Basin Plan, make it very difficult for the legislator to act. The change from River Basin to River Basin District is recent (and conflictive) and now requires transforming the River Basin Plans into River Basin District Plans. Thus it is the first time it has been possible to verify the scope of the reform, its potential success and the new path planning activity may take.

### **3. Exploitation of resources and water concession system**

Public water diversion concession is the traditional instrument through which the Public Administration permits the use of the water resources by an individual.<sup>32</sup> It is still regulated by R.D. 1775/1933, although it has been amended several times for a one-off device instrument, as is the concession, to adapt to the integrated management and planning requirements of a less and less available resource. It is impossible to have integrated water resources management: the concession instrument has not been inserted into a planning framework which, at a tangentially unitary moment, bears in mind the availability of the resources, the hierarchy of the interests and the fundamental demands of the people and it is not limited to the simple watercourse and to the simple diversion.

The public water diversion concession is the administrative measure that legitimises the use of public waters, with some limited exceptions (art. 2, R. D. 1775/1933). Public water users are subject to the payment of an annual levy, which varies depending on the type of use (art. 35, R. D. 1775/1933). If a watercourse system is modified by natural causes, the State is not compelled to provide any compensation, apart from the reduction of the levy if the use of the water decreases (art. 48, R. D. 1775/1933).

Users are divided into large diversions and small diversions depending on the limits established in agreement with the different users (art. 6, R. D. 1775/1933). Land registries for

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<sup>31</sup> LUGARESI, Nicola (1995) p. 361.

<sup>32</sup> LUGARESI, Nicola (1995) p. 245.

public water users have been prepared in agreement with declarations that users are compelled to present, which indicate the place, use, quantity of water uses and details of the concession measure (art. 5, R. D. 1775/1933). To homogenise, update and complete the information system related to surface water and groundwater and to the relative uses, as well as to the abstractions and returns, criteria have been established to provide homogeneous State and Regional data mining, including the data referring to the land registries and to the modalities of access and exchange of data between public administrations, guaranteeing appropriate ways of informing the public related to the measures to be taken (art.5-*bis*, R. D. 1775/1933).

The procedure used to grant water concessions has been modified several times with respect to the original model, which was characterised by limited preliminary proceedings and a criterion of temporary preference, based on the chronological order of the arrival of applications. Under the current legal system, applications for new concessions, accompanied by general projects of works to be carried out, must be addressed to the Ministry of Infrastructure and be presented at the Civil Engineering Office. They must also be transferred to the territorially competent River Basin Authorities, which will express their binding opinion with respect to the compatibility of use with the forecasts of the Protection Plan, to control the water or hydrological equilibrium. If the River Basin Authority does not make a decision a Commissioner will be appointed for the matter. The applications are published so that competitive applications that are technically incompatible with previous applications can be identified, and for subsequent preliminary proceedings (art. 7, R. D. 1775/1933). The competent authority, guaranteeing the due process principle between the possible stakeholders, will reflect, in its report, the qualities that characterise the different applications in connection with the more rational use of the watercourse and the public interests at stake (art. 8, R. D. 1775/1933). In case of conflicts of interests and incompatibility between more than one application, preference will be given to the application that guarantees a more rational use of the water resources depending on different criteria (current level of satisfaction of the basic demands of the competitors; priority for potable use; real possibility of a better use of the sources in connection with use; quantitative and qualitative characteristics of the water body; quantity and quality of returned water with respect to abstracted water). In particular, the preference is that, for the same type of use, the application should guarantee the greatest return of water in connection with the quality objectives of the water bodies, or guarantee that the few abstractions demanded should be comprised of water volumes derived from recovery and recycling activities. For productive uses, another criterion of preference is the possession of environment management system certifications (EMAS or ISO 14001). For irrigation, for the same type of use, an application from whoever is the owner of the lands that must be irrigated or from the relative consortium of owners is preferred. As

a general rule, under equal conditions, preference must be granted to the applicant that will offer the greatest technical, financial and economic guarantees of immediate execution and use. The criterion of presentation priority will only be applied when there are no conditions of preference (art. 9, R. D. 1775/1933).

The granting of the concession, which is accompanied by a drafted regulation that outlines the concessionaire's activity modalities, as well as the reciprocal rights and obligations (art. 40, R. D. 1775/1933), is subject to certain conditions to prevent the qualitative and quantitative protection of the resources from being jeopardised. In particular, the concession cannot be granted if there is a possibility of the quality objectives defined for the watercourse being harmed; if a minimum vital flow volume and the water equilibrium is not guaranteed; and if there are economically sustainable and effective possibilities for the re-use of treated wastewater or of rainwater collected. In any case, the water volumes granted will adapt to the possibilities of saving, re-use and recycling of the resources and, in the case of aquifer abstraction, the equilibrium must be guaranteed between the abstraction and recharge capacity above all to avoid the danger of intrusion of salted or contaminated water. In this regard, the concession regulation must establish, when technically possible, the quantity and qualitative characteristics of the returned water (art. 12.2, R. D. 1775/1933).

The concession is granted within the limits of the water availability and the concessionaire cannot allege the concession *per se* as a title to request compensations from the State (art. 19, R. D. 1775/1933). The rights of use, which cannot be granted without the authorisation of the competent authority (art. 20, R. D. 1775/1933), generally do not last for more than thirty years (art. 21, R. D. 1775/1933). Large diversions for potable use, irrigation or sanitation, so long as the ends of the diversion persist and there are no public interest considerations, will be renewed for the concessionaire, unless the Administration introduces modifications demanded by any new conditions (art. 28, R. D. 1775/1933).

For a more rational achievement of public interests, interventions can be carried out on previously approved concessions even before they expire. If a concession application for an important water use is technically incompatible with other legitimately constituted uses, the concession can be granted, under the condition that the new concessionaire provides the previous concessionaires with a relative quantity of water or energy, or, if this is too costly, compensates them (art. 45, R. D. 1775/1933). On the contrary, the right to divert and use public waters can be declared null and void if there is a lack of use or misuse, failure to observe the essential conditions of the concession or legislative and regulatory provisions, lack of payment of the levy or cession carried out without authorisation (art. 55, R. D. 1775/1933). The possibility of annulling

concessions due to the modification in the evaluation of the public interest in application of general principles is also outlined.<sup>33</sup>

D. Leg. 79/1999 establishes a special regime for large hydropower diversion concessions, for which the Regions and the Autonomous Provinces have competence. Five years before the expiry of a concession, and in the case of cancellation, relinquishment or revocation, so long as it is considered that there are no priority public interests in a different use of the water incompatible with the maintenance of the use for hydropower, a public tender will be called to grant the concession for payment, lasting for thirty years. The environmental sanitation and improvement of the relative river basin and the increase of the energy produced or of the power installed are fundamental elements of the offer. The new concession must respect the minimum vital constant flow of the watercourses affected, the water security of the basin and the hydropotable use flows relative to concessions that must be approved by the same water body. The minimum vital constant flow must be guaranteed even in concessions in force, generating, in the case of reduction of the average rated power, the right to a single reduction of the concession levy, without compensation for the concessionaire (art. 12, D. Leg. 79/1999).

Apart from the different regimes, the concession procedure model, even under the current regulation, has an insurmountable structural limit. It is not able to efficiently evaluate either public or private interests beyond each specific case, especially if there is a confrontation between increasingly diffuse and relevant private uses and public uses (even environmental ones). The more rational use for the specific case, identified after a comparison between several competitive applications, may guarantee the best decision in connection with the specific case but it cannot guarantee that this decision will harmonise with the other decisions made in a broader territorial or administrative scope. The diversion concession does not really permit a global consideration of the effects produced by the different uses in water resources and, therefore, it is not appropriate to guarantee the protection of the actual asset on its own. The fact is that the concession regulates the relationship between individuals and the Administration based mainly on the productive interests of the former, whilst a correct water management policy requires the prioritised consideration of the public interests, even preservation, in accordance with the general interest. This does not mean that the concession instrument has no function, rather that it will have to be framed within a planning or programming measure where public and private interests can be more globally evaluated.

The reconsideration of the relationships between public interests on water issues is determined by a change in the actual situation: water is no longer considered an inexhaustible resource (above all due to the exponential increase in demand) and the contamination phenomena is

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<sup>33</sup> LUGARESI, Nicola, BERCELLI, Jacopo, FERRAMOSCA, Annalisa (1998) p. 449.

becoming increasingly important and concerning (in many cases limiting the compatible uses). It can be deduced from this that the productive ends must respect the protection and preservation ends and that the main problem no longer concerns adapting the demands of the different users, but more generally, adapting the productive uses to ecological and hydrotable uses.

#### 4. Water resources qualitative and quantitative protection instruments

Water resource management includes and presupposes protection. Protection does not just mean protection against contamination phenomena, as both qualitative and quantitative protection must be considered, as included in the most recent community and national regulation.

Section II, Part III of D. Leg. 152/2006 deals with water protection with reference to both aspects, although the title of the section seems to refer to the qualitative aspects alone. The initial list of objectives and instruments of the section, confirmed later by the specific contents, demonstrates that the quantitative aspects are also taken into account (art. 73, D. Leg. D. Leg. 152/2006).

With respect to qualitative aspects, Section II, Part III of D. Leg. 152/2006 is based mainly on environmental *standards* and on the prescription of differentiated and reinforced protection areas. The environmental *standards* are divided into those that have environmental quality objectives and those with quality objectives for a specific use. The environmental quality objectives are defined by reference to connection with the self-treatment capacity of water bodies and the support capacity of the animal and plant communities. The quality objectives for specific use refer to the ideal status of the water bodies for a special functional use. Measures and times are defined and coordinated via protection plans in order to reach certain qualitative levels, without prejudice of the power of the Regions to identify higher quality objectives and other uses for water bodies (art.76, D. Leg. 152/2006). Surface fresh water used for producing drinking water, water used for bathing activities, fresh water that requires protection and improvement to be appropriate for the lives of fish, and water used for the lives of shellfish, are all waters with a specific functional destination (art. 79, D. Leg. 152/2006).

With respect to the differentiated and reinforced protection areas, there are more categories: sensitive areas, which cover a significant part of the national territory; additional sensitive areas can be gradually established later by the State and the Regions (art. 91, D. Leg. 152/2006); vulnerable areas caused by agricultural nitrates, where Action Programmes and the provisions of the Best Agricultural Practices Code must be applied (art. 92, D. Leg. 152/2006); vulnerable areas caused by plant health products and areas vulnerable to desertification, for which specific protection measures

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have been applied (art. 93, D. L. 152/2006); protection areas for surface and groundwater destined for human consumption, divided into absolute protection areas and respect areas (and possible protection areas), where certain activities are forbidden or permitted with restrictions (art. 94, D. Leg. 152/2006). Reinforced protection, which contains different requirements for the various categories both with reference to delimitation of the actual areas and in connection with the measures to adopt, is justified by specific stress factors that affect these areas and by the destination of the waters that flow through them.

Qualitative protection of the resource is of course based on the sewer system regime, which is compulsory for towns with more than 2000 inhabitants (art. 100, D. Leg. 152/2006), but it is also based on the waste disposal regime, regulated with the respect for the quality objectives of the water bodies and emission limits (art. 101, D. Leg. 152/2006), and divided into categories (thermal water discharges; discharges into soil, discharges into subsoil and into groundwater; discharges into surface waters, discharges of urban wastewater into water bodies of sensitive areas; discharges into sewer systems; and discharges of hazardous substances). The general rule is that, with few exceptions (such as discharge of domestic wastewater into sewer systems) all discharges must be previously authorised (art. 124, D. Leg. 152/2006) and submitted to inspection. The competent authority (art. 128, D. Leg. 152/2006) is authorised to carry out inspections and extract samples (art. 129, D. Leg. 152/2006) based on a system of programmed, periodical, generalised, effective and impartial control.

The quantitative protection of water has an autonomous value, connected to the sustainability of the use of the resources, and also a functional value related to qualitative protection. Section II, part III of D. Leg. 152/2006 (which, although not always in a coordinated manner, contains some standards for Section III), apart from considerably modifying some rules of R.D. 1775/1933, is based on two closely interrelated concepts, water equilibrium and water saving.

The equilibrium of the water balance, pursued through measures contained within the Protection Plans, is defined by the River Basin Authorities, bearing in mind the needs, availabilities, minimum vital flow, aquifer recharge capacity and use made of the resource which is compatible with the characteristics of the water bodies. The data related to the quantitative aspect are collected via devices to measure the flow volumes and the diverted public water volumes and then placed into circulation between the competent administrations (art. 95, D. Leg. 152/2006). The equilibrium of the water balance is also mentioned in Section III, Part III of D. Leg. 152/2006, with a regulation that partially reproduces that contained in Section II. Here the need is affirmed to guarantee the equilibrium between the availabilities of resources that can be located or activated in the area of reference and the needs for the different uses, requesting the competent River Basin Authority to



adopt measures to plan the water economy, and imposing the diversions regulation in such a way as to guarantee the necessary flow level required for life in the rivers and the equilibrium of the ecosystems affected (art. 145, D. Leg. 152/2006).

The conceding authorities must contemplate the concession of quantities of water that guarantee the minimum vital flow (defined by decree of the Ministry of the Environment after prior agreement with by the State-Regions Conference) in water bodies, for all water diversions. In this sense, the conceding authorities, after carrying out the census of all the uses that take place in the same water body, can proceed to review this census, applying temporary or quantitative provisions or limitations. In both cases, the payment of compensations by the Public Administration is excluded, except for the relative reduction of the state concession levy (art. 95, D. Leg. 152/2006).

Water saving contributes to obtaining the equilibrium of the water balance. The law imposes a general and more moral than legal obligation on the administrators and users of water resources, bearing in mind the absence of specific sanctions. This obligation consists in adopting the appropriate measures to eliminate waste and reduce consumptions, and increase the recycling and re-use of resources. The Regions, after hearing the River Basin Authorities, will approve specific rules on water saving in agriculture (art. 98, D. Leg. 152/2006). With reference to water re-use, the Ministry of the Environment will establish the technical regulations to re-use waste water, whilst the Regions will adopt rules and measures to favour water recycling and re-use of treated waste water (art. 99, D. Leg. 152/2006).

With reference to the water service in particular, it is prescribed that the Regions can adopt rules and measures aimed at rationalising consumption and eliminating waste, with special reference to the construction and maintenance of infrastructure, informing and raising awareness of users, modification of agricultural practices and the harmonisation with urban development provisions. Furthermore, specific provisions may be adopted on the necessary recovery of losses in distribution networks and sewer systems. (art. 146, D. Leg. 152/2006).

## **5. Water services and the Integrated Water Service**

Law 36/1994, replaced by D. Leg. 152/2006, posed the objective of rationalising water services in Italy, characterised by great inefficiency, and in particular by an enormous and unjustifiable waste of resources. The “Integrated Water Service” is comprised of a series of public catchment, supply, sewer and treatment services, and it must be managed according to principles of efficiency, effectiveness and saving. The integration of water services is first aimed at overcoming the fragmentation of management, both vertically (uniting different water services, until then

considered as separate), and horizontally (establishing different operating areas, not limited to the municipal district), to reach dimensions that will permit business management and economy of scale. In this sense, Section III, Part III of D. Leg. 152/2006 deals with the management of the Integrated Water Service (and in general, at least formally, of the water resources) from different perspectives: environmental protection, competence and basic provision levels of a public service (art. 141, D. Leg. 152/2006).

The Integrated Water Service is organised in agreement with the Optimal Territorial Areas defined by the Regions based on physical, demographic and technical parameters. The aim of the regional delimitation is to progressively improve management of the Service, respecting the principles of unity of the river basin, unity of management and adaptation of dimensions (art. 147, D. Leg. 152/2006).

There is an Area Authority in each Optimal Territorial Area, which has its own legal personality and all local entities of that Territory must participate in the Area Authority (according to different organisational models regulated by the Regions and the Autonomous Provinces). The exercise of the competences of local entities in water resources matters has been transferred to the Area Authority, including aspects such as the organisation, concession and control of the management of the Integrated Water Service (art. 148, D. Leg. 152/2006). Furthermore, the Area Authority is in charge of preparing the Area Plan (art. 149, D. Leg. 152/2006).

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**Deleted:** have an obligation to participate, according to cooperation forms and modes

The Area Authority, respecting the Area Plan and the principle of unity of management for each area, decides the management form of the Integrated Water Service from those set out in the legal system for local public services: capital society selected via public tender; mixed public-private capital society where the private partner is chosen by public tender; or totally public capital society, so long as the public body or bodies owning the share capital exercise a similar control over the society as over their own services and the society carries out the most important part of its activity with the public body or bodies that control it (art. 113.5, D. Leg. 267/2000).

The Area Authority awards the management of the Integrated Water Service via tender governed by community provisions and principles, in agreement with the criteria of art. 113.7 of D. Leg. 257/2000 which refers to the quality, safety, economic conditions, service provision levels, investment and technological and managerial innovation plans and elements that form an integral part of the service contract (art. 150, D. Leg. 152/2006).

The relationship between the Area Authority and the Integrated Water Service administrators is regulated by special agreements, prepared by the Area Authority according to standard agreements adopted by the Regions and Autonomous Provinces. The minimum content of these agreements is established directly by the legislator and covers aspects related to the service

management, relationship with users, maintenance of facilities, rates, control system of financial and insurance guarantees and sanctions. The outline of the agreement prepared by the Area Authority, with its relative legal system, will be enclosed with the tender specifications. The service concession is subordinated upon the administrator presenting the appropriate bank guarantee, which will cover the actions that will be carried out in the five years of management. The Integrated Water Service contract winner, with the Area Authority's authorisation, may manage other public services that are compatible with it (art. 151, D. Leg. 152/2006). The Integrated Water Service administrator is entrusted with the water infrastructure belonging to the local entities, which transfer the relative charges to the administrator (art. 153, D. Leg. 152/2006).

The Area Authority has the power to verify and access the water infrastructures, even in their construction phase. If there are faults that affect the service, the resource or the environment, the Area Authority is compelled to appropriately intervene, even exercising substitutive powers, which, in case of inactivity of the Area Authority, may be exercised by the Regions or the State, through a commissioner appointed for the matter (art. 152, D. Leg. 152/2006). The Integrated Water Service administrator is compelled to provide an appropriate territorial control service and an analysis laboratory for quality controls on the waters, or to stipulate agreements with other water service administrators (art. 165, D. Leg. 152/2006).

The tariff of the Integrated Water Service, which constitutes the payment for the service provided, must guarantee integral coverage of the investment and exercise costs. When determining such a tariff, the quality of the water resource and of the service provided and the works and necessary adaptations must be taken into account, as well as the amount of the management costs, the appropriateness of the remuneration of the invested capital and a contribution to the operating costs of the Area Authority.

Bearing in mind the need to recover the environmental costs according to the "polluter pays" principle, the Ministry of the Environment will define the cost components to determine the tariff corresponding to the water services for the different water use sectors. In this sense, the Ministry of Economy and Finance, in agreement with the Ministry of the Environment, will establish the general criteria for the determination, by the Regions, of the concession levies for the public water user, with three-yearly updates, always bearing in mind the environmental and resource costs. Some reductions in levy are foreseen if the concessionaire re-uses the water.

The Area Authority determines the basic tariff. It will be the administrators who will apply the tariff and collect the payments, always respecting the Agreement and the relative regulation. Facilities are guaranteed in the tariff modulation for basic domestic consumptions and for consumptions of certain categories, according to a predetermined income scale, whilst there is the

possibility of increases in tariff for secondary residences, for seasonal tourist complexes, as well as for craft, commercial or industrial enterprises. The possible tariff grading between the Municipalities contemplates the investments *per capita* carried out by the actual Municipalities that are useful for the ends of the organisation of the Integrated Water Service (art. 154, D. Leg. 152/2006).

Users must pay the tariffs for the public sewer and treatment services, even if there are no treatment plants or these are inactive. The tariff will not be applied if the user has their own treatment and collection systems, specifically approved by the Area Authority. To determine the tariff of the public sewage and treatment services, the volume of water discharged must be equivalent to the volume of water supplied. For industrial users, the tariff of the sewage and treatment services is determined based on the quality and quantity of the waste water discharged, applying the “polluter pays” principle, without prejudice of establishing a reduced tariff for users who are directly responsible for the treatment and who use the public sewage service, prior specific approval from the Area Authority. Furthermore, to foster resources saving processes, the tariff for industrial users is also reduced in agreement with the use of waste waters and used waters in the production process (art. 155, D. Leg. 152/2006).

The Integrated Water Service administrator also performs the function of informing and raising awareness of the users, promoting initiatives to disseminate the water culture and guaranteeing access of the citizens to the data related to the services managed in the Optimal Territorial Area of their competence. Other advertising methods are foreseen on a State and Regional level (art. 162, D. Leg. 152/2006).

With a view to planning the use of water resources, wherever there may be a real need to transfer water between different Regions, beyond the reference perimeters of the River Basin Area, after consulting with the Regions affected, the River Basin Authorities will promote programme agreements between them. The works and facilities required will be declared of national interest (art. 158, D. Leg. 152/2006).

With a view to improving environmental protection, some special provisions have been included in connection with the protection areas of the water resources for human consumption (art. 163, D. Leg. 152/2006) and national and regional protected natural areas (art. 164, D. Leg. 152/2006).

The Integrated Water Service has constituted a substantial novelty for the Italian legal system, intervening in a system close to collapse. In any case, it has not solved all the problems related to water services, either concerning their efficiency, which is still below the European mean, or referring to the relationship between public and private users and interests. The service

management, even when entrusted to individuals according to the principle of horizontal subsidiarity, has generally not shown significant improvement margins, but it has posed problems in the relationship between agent and use. Furthermore, for the tariff establishment mechanism, this means that the expected progresses have not always been made, with the possible appearance of new social problems in some territorial areas. The situation gets more delicate if it affects an asset-resource such as water, which is necessary for life and for the dignity of people, and with respect to which the community can claim expectations for access to it in sufficient quantities and at a reasonable cost, if not an absolute right. The territorial differentiation of the tariffs, and above all their quantification, poses a difficult relationship with the basic principles of our legal system, such as the principle of substantial equality (art. 3.2, Const.) and the principle of solidarity (art. 2, Const.).

## **6. The costs of water**

The decreasing amount of water available in the national territory has emphasised its economic value over the last few years, giving us the right to ask about the need to use market instruments in water resources management. Considering that it is not just an asset in the legal sense or a community resource, but rather a social and environmental value and an essential “right” to guarantee people’s lives, health and dignity, we cannot blindly leave it in the hands of the market. If the aspects of social and environmental availability are not considered, disintegration and separation phenomena can appear, within a system that does not protect the weakest sectors of the population.

The water services cost recovery problem, as posed by art. 9 of Directive 2000/60/CE, is incorporated in a regulation introduced into Section II, Part III of D. Leg 152/2006 (in particular in the section on Management Plans and Water Protection Plans).<sup>34</sup> This location is peculiar, if we consider that it is Section III that deals with water services. The functional relation that the regulation establishes between the principle of cost recovery and obtaining water quality objectives is also peculiar. The regulation of costs is not a problem that just affects the water services in a strict sense, or the qualitative component of protection, but also the management of the resource in general. These considerations increase the yearning for the systematisation of water-related regulation, as there is no common part where the provisions of principle that affect the water resources management can be incorporated in a broad sense.

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<sup>34</sup> UNNERSTALL, Herwig (2007) p. 29.

In any case, the regulation imposes on the competent Authorities that “bear in mind” the principle of cost recovery of water services, including environmental services and those related to the resource, applying the “polluter pays” principle and considering the economic analysis carried out in agreement with Annex 10 of Part III of D. Leg. 152/2006. More specifically, before the year 2010, appropriate water pricing policies must be established to foster a responsible and efficient use of the water resources by users and to achieve both qualitative and quantitative protection. In addition, the water services cost recovery must be entrusted to different sectors that use the water resources (civil, industrial, agricultural), bearing in mind the social, environmental and economic repercussions, as well as the geographic and climatic conditions. More specifically, whilst the concession levies for public water diversions bear in mind the environmental costs and resource costs linked to the use of water, the tariffs of the water services under the responsibility of the different water use sectors must contribute to cost recovery in agreement with the economic analysis carried out according to the aforementioned Annex 10 (art. 119, D. Leg. 152/2006). Annex 10 requires the economic analysis to provide sufficient and detailed information so as to be able to consider the cost recovery principle of the water services, bearing in mind the long-term forecast and evaluating the effectiveness of the most profitable measures, taking into account the respective costs, corresponding to the water uses.

In the near future, we can envisage that the water cost question will play an especially delicate, and even decisive, role, in the area of water resources management systems. Managing resources also means giving them a value, and this value has not only economic repercussions, but also social ones, especially from the time when the object of the evaluation is, as occurs with water, not only an asset, but also a vital need and a productive element.

#### **IV. Conclusion**

It can be deduced from examining the scientific data available that the situation is complicated. The quantity of water available for the different uses is progressively decreasing – above all for potable uses – thus increasing the possibility of the occurrence of water crises. The strategic type responses to the management of water resources are different, but they have two aspects in common. The first, of a substantial nature, refers to the need to make the system more efficient, reducing waste, saving, recycling and re-using the resources, even by increasing the waste water treatment initiatives. The second, of an organisational nature, demands a real integration of the system, by simplifying the framework of competences and determining some more rational decision-making levels.

The guidelines laid down as priority in the official documents refer to some fundamental objectives, such as the improvement and integration of the cognitive framework, reduction of the demand in the different sectors, reduction of pollution, consideration of climate factors and greater flexibility of management as well as research and training.<sup>35</sup> But, without a reconsideration and simplification of the institutional and regulatory framework, pursuing these objectives will not be at all easy, and will require greater organisation and procedural efforts, but without being able to guarantee a satisfactory result. Really, what is still missing is the unitary consideration of the problems of water resource management, which should cover cognitive aspects, aspects related to the ownership of the resource, to its planning and programming, aspects related to the exploitation of the resource, aspects of its qualitative and quantitative protection, aspects related to water services and aspects related to the application of economic criteria.

Beyond all these considerations is the requirement to finally have a genuine reform of the water resources regulation, in the area of a water code that is not just a simple sum of previous regulations, but a real integration of all the rules that affect water management and which is based on common principles that must currently be sought in the different sectorial parts (and in Directive 2000/60/CE, with special reference to art. 1).

These principles include the public ownership of surface waters and groundwater (art. 144.1, D. Leg. 152/2006); the hydrogeological sanitation of the territory and the fight against desertification (arts. 53.1 and 73.1 D. Leg. 152/2006); the nature of water as a resource, which must be managed according to criteria of solidarity and applying the principle of sustainable development (art. 144.2, D. Leg. 152/2006); the requirements of qualitative and quantitative protection, rationalising the uses, limiting waste, reducing consumption, fostering the renovation of resources and pursuing sustainable and long-lasting uses and saving of the resource (arts. 73.1, 98.1, 144.3, 146 D. Leg. 152/2006); the protection of water as an environmental resource, element and asset, to be considered with other environmental components, maintaining its capacity to support ecosystems (arts. 73.1, 144.3, D. Leg. 152/2006); the prevention and reduction of contamination and sanitation of polluting water bodies (art. 73.1, D. Leg. 152/2006); the hierarchy between the uses, giving priority to civil uses, and the pursuing an equilibrium in the water balance (arts. 144.4 & 145, D. Leg. 152/2006); the cost recovery of water services and of water uses, via a one-off economic analysis that also considers the social, environmental and economic consequences (art. 119.1, D. Leg. 152/2006); the collaboration of citizens and users, via information, participation and consultation mechanisms (art. 122.1, D. Leg. 152/2006); and the recovery of efficiency in water resources (art. 141, D. Leg. 152/2006).

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<sup>35</sup> APAT (2007) p. 75.

Based on these principles and overcoming the sectorial approach of the water resources regulation, it will be possible, finally, to reach a genuine code, or consolidated text, for water resources,<sup>36</sup> that will address the different problems in a coordinated manner, posing integrated water management policies.

## **Bibliography**

CARINGELLA, Francesco (2007), “Manuale di diritto amministrativo”, Milan, Giuffrè.

CASSESE, Sabino (1969), “I beni pubblici. Circolazione e tutela”, Milan, Giuffrè.

CERULLI IRELLI, Vincenzo (1988), “Acque pubbliche”, Legal Encyclopaedia, Rome, Treccani, pages 1-18.

DE BELLIS, Carlo (1984), “Acque ed interessi territoriali”, Bari, Cacucci.

GORIA, Alessandra, LUGARESI, Nicola (2004), “The evolution of the water regime in Italy”, The evolution of national water regimes in Europe (by Kissling-Naf, I., Kuks, F.), Dordrecht, Kluwer, pages. 265-291.

GRECO, Nicola (1983), “Le acque”, Bologna, Il Mulino.

LUGARESI, Nicola (1995), “Le acque pubbliche. Profili dominicali, di tutela e di gestione”, Padova, Cedam.

LUGARESI, Nicola (2000), “Rethinking Water Law”. The Italian Case for a Water Code”, Trento, Department of Legal Science.

LUGARESI, Nicola (2003), “Diritto delle acque, principi internazionali, etica”, La disciplina giuridica delle risorse idriche (per N. Lugaresi, F. Mastragostino) Rímìni, Maggioli, pages 17-78.

LUGARESI, Nicola (2006), “Acque pubbliche”, Dizionario di diritto pubblico, Vol. I, Milán, Giuffrè, pages 94-97.

LUGARESI, Nicola, BERCELLI, Jacopo, FERRAMOSCA, Annalisa (1998), “Revoca o modifica delle concessioni idriche per motivi di compatibilità ambientale”, Legal journal on urban development, pages 449-496.

UNNERSTALL, Herwig (2007), “The Principle of Full Cost Recovery in the EU-Water Framework Directive – Genesis and Content”, Journal of Environmental Law, pages 29-42.

## **Documentary references:**

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<sup>36</sup> LUGARESI, Nicola (2000) p. 127.



APAT (Agency for the Protection of the Environment and Technical Services), “*Annuario dei dati ambientali 2007 (Tematiche in primo piano)*”, Rome 2007, <[http://annuario.apat.it/docs/TEMATICHE\\_annuario2007.pdf](http://annuario.apat.it/docs/TEMATICHE_annuario2007.pdf)>.

APAT (Agency for the Protection of the Environment and Technical Services “*Ideambiente*”, anno 5, n.37, 2008 <[www.apat.gov.it/site/IT/IdeAmbiente/Sezioni/Articoli/Documenti/0809\\_2006\\_art\\_06.html?PageID=9643](http://www.apat.gov.it/site/IT/IdeAmbiente/Sezioni/Articoli/Documenti/0809_2006_art_06.html?PageID=9643)>.

A.V.R.I.R. (Water Resources and Waste Watch Authority ), “*Relazione annuale al Parlamento sullo stato dei servizi idrici, anno 2005*”, Rome 2006, <<http://www.gruppo183.org/mdb/file/relazioneannualecomitatovigilanza2005.pdf>>.

CO.VI.R.I. (Watch Committee for the Use of Water Resources), “*Rapporto sullo stato di attuazione dei servizi idrici 2007*”, Rome 2008,

<[www.gruppo183.org/mdb/file/Relazione%20stato%20di%20attuazioneSII\\_anno\\_2007.pdf](http://www.gruppo183.org/mdb/file/Relazione%20stato%20di%20attuazioneSII_anno_2007.pdf)>.

ISTAT (National Statistics Institute), “*100 statistiche per il Paese*”, Rome 2008, <[www.istat.it/dati/catalogo/20080507\\_01/testointegrale20080507.pdf](http://www.istat.it/dati/catalogo/20080507_01/testointegrale20080507.pdf)>.

MINISTERO ~~DEL MEDIO~~-AMBIENTE (Ministry of the Environment and Protection of Land and Sea), “*Relazione sullo Stato dell’ambiente 2001*”, Rome 2002,

<[www2.minambiente.it/sito/pubblicazioni/Collana\\_RSA/RSA\\_2001/Parte\\_b/6\\_acque-interne.pdf](http://www2.minambiente.it/sito/pubblicazioni/Collana_RSA/RSA_2001/Parte_b/6_acque-interne.pdf)>

MINISTERO AMBIENTE (Ministry of the Environment and Protection of Land and Sea “*Relazione sullo Stato dell’ambiente 2005*”, Rome 2006, <[www2.minambiente.it/sito/pubblicazioni/rsa\\_2005/docs/rsa\\_2005.pdf](http://www2.minambiente.it/sito/pubblicazioni/rsa_2005/docs/rsa_2005.pdf)>.

#### **List of acronyms and abbreviations:**

A: Annex

APAT: Agency for the Protection of the Environment and Technical Services

ATO: Optimal Territorial Area

A.V.R.I.R.: Water Resources and Waste Watch Authority

T. C.: Constitutional Court

Const.: Constitution

CO.VI.R.I.: Watch Committee for the Use of Water Resources

D. L.: Decree Law

D. Leg.: Legislative Degree

~~D. Lgt.:~~ Decreto Lugartenencial

ISTAT: National Statistics Institute

Const. Law: Constitutional Law

R. D.: Royal Decree

Deleted: D. Lug.