

Legislative framework, rules and planning experiences in Italy for environmental and energetic management of historical centres and rural settlements



Telos Ltd.
Rome Italy
e-mail: info@telositalia.it
giovanni.cafiero@mclink.net
Giovanni Cafiero (coord.)*
Gianluigi Nigro**
Francesco Nigro***

* architect, President and Chief Executive Officer

** Telos partner, Lecturer in Urban Planning, La Sapienza University – Rome

*** architect, Telos partner

ABSTRACT

1. Legislative framework and policies in Italy for urban energetic efficiency: general overview
2. Urban planning for historical centres and cultural heritage: the case of Ravenna
3. Energy management and rules for small settlements and farms in rural and protected areas: the case of the National Park of Alta Murgia in Puglia

KEYWORDS

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LEGISLATIVE FRAMEWORK AND POLICIES IN ITALY FOR URBAN ENERGETIC EFFICIENCY: GENERAL OVERVIEW

Legislative framework

With the implementation of the European Directive Energy Performance of Buildings (EPBD) 2002/91/EC, with the issuing of the Law Decree 192 of 19 August 2005 “Implementation of the directive 2002/91/EC concerning the energy performance of

buildings”, at the beginning of 2007 the Law Decree 311 of 29 December 2006 ”Corrective dispositions and integrations to the Law Decree of 19 August 2005 n.192” was issued, in force since 2 of February 2007.

The problem of the restraint of Energy consumption of the buildings has been regulated in Italy since 2005 according to the Law 10/1991 and the related decrees, following a first regulation provided for by the Law 373/1976 and related decrees.

The publication of the Law Decree 192/2005 and the Law Decree 311/2006 substantially modified the planning criteria of the energy conservation. Actually, the decrees introduced important news according to the planning criteria and the control methods of the heat performance of the buildings, implementing the European Directive 2002/91/EC and introducing as parameter the calculation of the year requirements of primary energy (for winter heating) given in kWh/m² of area/year for the residential sector (E_{Pi}).

Each building with an available area greater than 1000 m² shall be evaluated and classified in terms of Energy efficiency based on the global Energy consumption expressed in Wh/m², adding the different performance in terms of cooling, heating, and preparation of hot water (each compared with reference parameters for the different climate areas). Based on specific performance classes for the different climate areas – classes identified with letters A to G, with the introduction of a class A+ -, the building is assigned a label of energy efficiency corresponding to the building global energy class.

For the residential building the Energy certification concerns a single apartment. For a block of flats, in general, it will be possible to have a common original certification for similar flats (in-between floors), both for centralized and individual systems.

The Law Decree 192/2005 and the Law Decree 311/2006 envisaged three implementing decrees:

1. to calculate the modes and the minimum requirements for the Energy performance of buildings and heating systems and the making of hot water for sanitary use;
2. to define the acknowledgement criteria to ensure the qualification and the independence of experts and bodies which have to provide the Energy certification;
3. to define the application procedures of building energy certification, containing the National guidelines.

The 25 June 2009 the Decree of the President of the Republic 2 April 2009 n.59 came into force, establishing minimum standards on the energy performance of new buildings and existing buildings that are subject to major renovation; the 25 July 2009 the MD 26 June 2009 came into force, establishing the National guidelines for the energy certification of buildings. The figure of the Energy auditor, without a National regulation, is regulated by the Regional Law.

The Guidelines apply to independent Provinces and Regions which still do not have their own certification tools, or until the Regional laws come into force. Those which have its own Law (Lombardia, Liguria, Emilia Romagna and Bolzano province) shall adapt it to the State one. According to the Guidelines, since 1 July 2009, the Energy certification for the single property is mandatory, even for a unit of less than 1000 m², sold or rented, existing or new buildings, as provided for by the art. 6 section 1-bis of the Law Decree 192/2005.

The Italian property park in the residential sector

Residential buildings in Italy are 11.226.595, for a total of 27.268.880 houses.

Of these 6.598.536 were built before 1945.

From the energy efficiency point of view, these houses do not result to be the less performing, thanks to their traditional bearing wall.

The portion of houses with minor Energy efficiency can be identified with the one built between 1945 and 1981, a 56% of the total amount. Even if the first Italian Law concerning the energy efficiency in building dates to 1976, the first years of the application did not succeed for a lack of control and training of technicians and administrative staff.

From a typological-dimensional point of view, the buildings are for a 42% are one-family or duplex flats. The intermediate size between 3 and 15 flats per building includes the 36% of the houses. 22% of the houses are made of big block of houses with more than 16 houses. The mean size of the house is of 91,88m²

The most representative size classes are between 80 and 99 m² (26%) and between 60 and 79 m² (21%).

Concerning the Energy consumptions of houses in Italy lowest value is recorded among the more developed countries. Such a value does not depend on the high energy efficiency, but by the favourable climate conditions. The data compared with the day degree, 169 kWh /m² is among the highest.

The property is the main possession title of the houses, at 71% followed by rent at 20%. In Italy there is a great number of not occupied houses, a 20%; a percentage influenced by a great deal of second houses, around 11% of the total houses. This component affects the interventions of Energy requalification, discouraging investments considering the season reduced use of the houses.

Concerning the Energy requalification interventions of buildings Italy mainly focused on tax incentives. In 2007 the government promoted a specific measure augmenting at 55% the tax allowance, with a special VAT at 10%, an incentive higher than the one for traditional interventions of building renovation, at 36%, which still in 1998 included interventions useful to the Energy conservation.

Italian state gave to ENEA the management and the monitoring of tax allowance for Energy requalification.

Only in 2007 the requests were 106.000.

Even if the government was doubtful whether to confirm or not the decision at the end of 2008, the public opinion, the mass media and many economical organizations strongly supported, succeeding, the renovation of the tax allowance for the years 2009-2011.

Concerning the subjective characteristics of the requests there is a clear prevalence of private citizens (93%) and a reduced presence of blocks of flats and legal persons.

Concerning the technical contents of the tax allowance requests of 55%, the main elements are:

1. prevalence of isolated interventions (in particular boiler and fixture substitution) compared to integrated interventions;
2. a very limited number of interventions involving the exterior of the house or building.

A very interesting aspect to address public politics is a strong geographic difference of interventions. It goes from the highest values, 51 requests sent in 2007 every 10.000 inhabitants in Trentino Alto Adige Region to the lowest values of 3 requests in Sicilia and 4 in Calabria every 10.000 inhabitants.

Globally, Italy shows a marked dualism between North and South.

If in some regions of the North the market of Energy requalification reaches excellence levels compared to the most advanced European countries in the sector, in other

regions the market of building requalification seems still to be at the initial state and needs specific actions of information, training and incentive.

Concerning the choice of favouring the tax allowance by the Italian State, it is useful to stress two important elements:

1. the decision was very important in promoting the emerging of the illegal work, very spread in the renovation of private houses, particularly in the South of Italy, but where this condition probably contributed to limit the requalification interventions connected to the tax allowance compared to Northern Italy;
2. the decision was supported by the Italian consumer, who is not prone to adhere to the complex technical directives and procedures, but it did not significantly urge the interventions of "global energy requalification".

The difficulty in executing the Energy requalification interventions of the building is stressed by the experience of the "white certificates". Even if the general performance of the white certificate shows a very favourable trend and a steady overcoming of the fixed objectives and even if the civil sector is prevailing and an important proportion of the savings (21%) is to be ascribed to the Energy needs of the civil sector, the interventions result to be an almost null percentage of the interventions on the exterior of the buildings.

Out of a total of 1.768 of projects approved and designed according to the standardized technical sheets, just 19 in Italy concerned the isolation of buildings for heating needs; 22 projects concerned the use of double-glazed windows; 3 the isolation of buildings for cooling needs.

A peculiar aspect, concerning the spreading of interventions of house requalification, came out with the 2001 Census by ISTAT on houses and related to the interventions on houses performed in the decade preceding the census year, is represented by the fact that, in absolute terms the most interventions are made in houses where the resident and the owner coincide, in relative terms there is a percentage of interventions of houses lived by renters which is not very lower: 49% in the property houses and 40% in the rented houses. This aspect can be referred to a higher mobility of the real estate market determined by the rent houses, which is a favourable element to the restoration works, which usually are made at the moment the family moves to the new house. On the contrary, the main inclination to invest on Energy requalification which should characterize a house could be stopped by the scarce mobility characterizing the houses occupied by the owners themselves. The data would seem a confirmation to the believing that the mobility, more than the property, urges restoration works, while the long living in a house act as a check.

Hence, it is important to urge Energy requalification interventions as a valid option and not as an additional element to the traditional renovation works.

Policies in Italy for urban energetic efficiency

Tax allowances to favour interventions on existing buildings aimed at saving Energy (55%). The Law 27 December 2006 n. 296, "The Financial bill 2007", introduced incentives for interventions aimed at requalifying the energy of the existing buildings according to the sections 344, 345, 346 e 347 of the art. 1, tax allowances of 55% of the total amount spent to realize interventions of energy savings made during the year 2007.

In particular, art. 1 establishes with different sections the kinds of interventions to be done to obtain a tax allowance:

- section 344: global Energy requalification interventions of the building;

- section 345: interventions on horizontal opaque structures, vertical opaque structure and windows with fixtures;
- section 346: interventions of solar panel installation for producing hot waters;
- section 347: interventions of heating system substitution with condensation boilers.

The “building decree” clarifies that the allowance:

- concerns interventions of Energy savings on existing buildings of any use
- introduces the special VAT at 10% for the labour (for material provision at 10% until the labour cost and at 20% for the remaining part)
- can be accessed by companies too
- can be accessed by people who are the owners of the building (physical or juridical person), IRPEF or IRES passive subjects.

The contents of the Financial Bill 2007 was later integrated by the Financial Bill 2008 and 2010, by some Ministry decrees and different decisions of the Internal revenue service and still until all the year 2011 it is possible to benefit from the same tax allowances.

The monitoring of the requests and the evaluation of the results obtained in terms of Energy, environment and economics, as well as the technical support to the requesters, were left to ENEA. The data bank of the received requests allowed to count the number and the kind of people taking advantage of the incentives, to characterize the investments associated and quantify the costs for the National revenue related to the incentives themselves, as well as to associate to them the Energy savings resulted in terms of MWh saved and of tons of CO₂ not issued in the atmosphere.

The 2007 campaign recorded a considerable participation. Since 26 February 2007 at the end of mandatory term of the documentation sending, 29 February 2008, around 106.000 requests were recorded.

The analyses performed on the state of the art of the buildings to be restored substantially confirmed what emerged by the data of the ISTAT census concerning the state and the age of the buildings. Interventions mainly involved not recent, not in good condition, not very big buildings, mainly one family or duplex buildings.

White certificates

"White certificates", also called “Energy efficiency credits” (TEE), certify the meeting of energy savings through the applying of efficient technologies and systems. The Energy manager issues them on the base of the certifications of the savings given by The Regulatory Authority for Electricity and Gas, an independent authority created with the Law 14 November 1995, no. 481 with regulatory and control functions of energy and gas sectors. A certificate is equal to the saving of 1 Ton of Equivalent Petroleum (TEP), which is the standard unit used to express all the energy sources considering their calorific value. The projects aimed at obtaining the certificates are incentivized by the authority.

White certificates in Europe. Italy is the first country which has introduced white certificates (2001), followed by France and Poland as a tool to meet goals of energy efficiency. In other European countries there are other ways to save Energy for Energy and natural gas companies (for ex.: Denmark, Ireland, United Kingdom, Flanders region in Belgium).

The Directive 2006/32/EC expressly mentions the white certificates among the tools the Member States can use to meet the goal for the Energy savings introduced by the Directive itself and envisages that, on the base of the outcomes met in the first three

years of introduction, the Committee shall evaluate the chance of introducing in the European Community a market approach based on the white certificate trading. The experience of Italy in developing quantification methods of energy savings in the scope of white certificates continues to be investigated by the technical committees created for implementing the Directive.

The subjects accredited and the white certificate market. The goals of Energy savings linked to the issuing of white certificates are mandatory or optional: the “forced subjects” are the companies of the big Energy and gas distribution (with at least 50.000 end users); the “voluntary subjects” have to be accredited and registered in a list of Energy Service companies. Since 2007 (MD. 21/2007) the extension of the issuing of energy efficiency certificates is envisaged also for who appointed a responsible for the preservation and the rational use of energy (the energy manager); this means that these subjects (including public bodies and private companies of the tertiary or industrial sector with year energy consumption higher than 1.000 tep and 10.000 tep, respectively), will be able to directly access the incentives for energy efficiency interventions, without the intermediation by distributors or energy service companies.

Until 31 May 2008 1169 subjects were registered as energy service companies, with an increase of 27% compared to the previous year.

The territorial analysis of “active” energy service companies shows a strong geographical difference: out of 185 companies which requested the saving certification for the last year, 87 are in the Northern area, 62 at the Centre and 36 in the South.

White certificates can be exchanged, allowing to reach the mandatory goals of Energy savings through their acquisition. In Italy there is a market of white certificates, regulated by a register of operators. Until 31 May 2008 the operators enrolled in the Register of Energy efficiency credits were 215, among which 46 were distributors, 160 were energy service companies and 9 traders. Out of the 215 operators enrolled in the Registry, with an increase of 23% in the last 12 months, 175 requested and obtained from the energy manager also the qualification as market operators (of these, 37 are distributors, 131 are energy service companies and 7 are traders). The number of credits handled (in the organized market or through bilateral negotiation) in the 12 months preceding 31 May 2008 were 861.674 energy efficiency credits, a third value higher than the goals established for 2007. It is a global amount of less than three times higher than the one registered during the previous year (between 31 May 2006 and 31 May 2007), and then proportionally increased to the doubled goals.

Certified savings and realized projects. From 1 June 2007 to 31 May 2008 the Authority had certified, supported by Enea, Energy savings of 903.627 tep, requesting to the Energy manager the issuing of Energy efficiency credits divided as follows:

- 698.592 of type I (credits for reducing Energy consumption);
- 179.260 of type II (credits for reducing natural gas consumption);
- 25.775 of type III (credits for reducing solid, liquid and gas fuels).

In the whole, the number of credits for which the Energy manager issuing was requested was higher than 40% compared to the goal assigned for the year 2007. The savings certified in Energy uses are more than three times higher than the minimum amount of type I requested for the year 2007 (50% of the goal of the Energy distributors); the savings certified in using natural gas are a little less than a ½ the minimum amount of type II credits requested for the year (50% of the goal of the natural gas distributors).

Distribution in percentage of the credits certified from 1 January 2008 to 31 May 2008 among the different subjects entitled to issue credits.

Subjects	Percentage of credits certified
	%
Forced Energy distributors	11,4
Forced Gas distributors	10,1
Not forced distributors	1,9
Energy service companies	76,6
Total	100

During the first three years of implementation, the percentage of credits issued increased compared to the projects of not forced subjects.

Concerning the projects that did not allow the issuing of certifications, there is a confirmation of the prevalence of energy savings in the civil sector. The percentage of this kind of interventions increased of other 4 points compared to the second year of implementation, while the percentage concerning the interventions aimed at reducing heating needs in the civil sector increased by 5 points (installation of devices for reducing water consumption, boiler and water heater substitution with high performance models, interventions on the building exterior, etc.) .

In detail, the distribution was as follows: Energy uses in the civil sector 59%, heating needs in the civil sector 21%, public lighting 8%, Energy production and distribution in the civil sector 6%, heating and electrical uses in the industrial sector 6%.

The civil sector and the building Energy qualification. Even if the civil sector is the considerably predominant and, in particular a percentage of the certified savings (21%) is given to the heating needs in the civil sector, in detail, the interventions made on the exterior is extremely poor.

Out of a total of 1.768 projects approved and written according the standardized technical sheets, just 19 concern the isolation of buildings for heating needs; 22 projects concern the use of double-gazed windows; 3 the isolation of buildings for cooling needs.

Most projects concerned the use of compact fluorescent lamps (469), the use of solar collectors (281), and the substitution of lamps for public lighting.

General remarks. At the end of the third year of implementation it was possible to analyze and outline any characteristic and hence to express general evaluations compared to the past; it is possible to outline the following trends:

1. a constant increase of the certified savings, resulting in a quantity than the assigned goals, with a mean ratio in the first three years of about 2:1;
2. increasing interest and activities of the Energy service companies, which in three years have increased the number and the portion of the certified savings;
3. a progressive increase in the percentage of certified savings with simpler interventions and affordable costs;
4. an increasing preference in exchanging stocks rather than bilateral stocks, even with a strong price instability and with a reduced stock liquidity;
5. values of the unit contribution acknowledged to the forced subjects and of the stock exchanges, constantly and widely lower than the cost avoided for the

energy acquisition (also due to the strong increase registered in the Energy prices between the fourth quarter of 2007 and the first three of 2008).

In short, according to the Energy and Gas Authority, Italian experience is showing to be very positive: in the period of January 2005-May 2008, in the house of Italians more than 8 hundred thousand low power supply appliances, 21 millions of “high efficiency” lamps, 230 thousand a m² of solar panels to produce hot water have been implemented. With these devices, together with some useful tactic, families assured a 80% of the total energy savings obtained with the “white certificates”. The Third Report (December 2008) shows developments of the Energy efficiency also in the industrial sectors, thanks to the installation of hundreds electric motors and frequency regulators, as well as of tens of cogeneration systems; in the public sector the lighting systems were made more efficient thanks to the substitution of 420 thousand lamps and to the installation of automatic regulation systems. In the first four years of implementation (from January 2005 to December 2008) the whole saving has already exceeded 2 millions of Tep. A saving corresponding to the Energy production of a power station of more than 1.100 MW and to the house consumption of more than 2,5 millions of tons of CO₂ emissions. Considering incentives for around 110 millions of Euros given by the Authority, the Energy cost saved by consumers (for which the interventions were realized) accounts for from 9 to 14 times the cost of the incentives themselves (for each Energy unit saved).

In general terms, the mechanism of “white certificates” is helping: to stimulate the birth of an Energy service market; to spread to companies and citizens a better culture of the Energy efficiency and of the rational use of Energy; to stimulate the realization of interventions with a more favourable cost/efficacy ratio; to guarantee the economical efficiency of the incentive, even through an increasing use of exchanges in the stock. Furthermore, the system allowed promoting a better spreading of information to users, and an increasing awareness on the matter of energy saving, a very important element for spreading more efficient technologies.

Among the critic elements it is important to mark:

1. the measured degree of the activity structure – i.e. development of the interventions aimed at spreading mid-long term technologies - and of the activities able to produce Energy savings beyond the conventional technical life cycle, in which these savings receive the credits;
2. the high regional difference, showing a reduced presence of active Energy service companies and projects in the South if the country.

Concerning more specifically the Energy qualification interventions of the building exterior, data shows the difficulty in performing such interventions resulting in a low number of projects compared to a higher number of projects concerning the use of more efficient systems.

Energy efficiency contracts

The Law Decree 115 of 30 May 2008, implementing the EEC directive 2006/32/EC concerning the efficiency of the final uses of Energy and Energy services, envisaged some contracts, already used in Europe, allowing the qualified companies such as ESCO to intervene in the blocks of flats realizing energy saving works.

This kind of contract is to be ascribed among the tools to make the building requalification available and hence to meet the Energy saving goals the International Community wishes to. The main characteristic of these contracts is that ESCO company earns based on the savings it reaches following the interventions realized on the building walls and systems. This kind of contracts is supported by the tax lawmaker

since it allows not to lose the tax allowance provided for by the Financial bill 2007 and of 2008 and extended with the recent Law decisions, 55% of the works is deducted by the income tax return within the next years (currently in 5 years).

Attachment II, sections 4, 5 and 6 of the Law Decree 115/2008 provides a full regulation of the contents of these contracts.

The main characteristics are represented by the obligation to have the Energy certificate of the building settled at the moment of the task entrusting, and to detect the works for the improvement of the energy performance to be realized among the ones included in the certificate.

Furthermore, it is important to underline the absolute innovation of the lawmaker in paying ESCO according to an amount based on the obtained saving.

Actually, the payment is calculated based on objective parameters, independent from the current fuel and system consumption (based on the season trends), to be paid through a month fee including the good and service provision aimed at improving energy performance. Other important characteristics, contained in the Energy performance contract, envisaged the commitment in reaching a 10% saving within the first year of contract. Another news is the duration of the contract: if the contract envisages the realization of particularly relevant works, the contract can last for more than 10 years.

The Energy performance contracts can include, ex section 5.2 of Att.II of Law decree 115/2008: “directly or through additional acts, a «financial tool for Energy savings» aimed at realizing specific interventions to improve the transformation process and Energy use, to requalify at an Energy level the exterior of the building and to produce renewable Energy sources”.

Energy requalification interventions of buildings allow to reduce the expenses for the building management and the costs of these interventions can be amortized in a considerably short time.

The limit in realizing the above interventions is the difficulty in paying the expenses for the needed administration expenses. The energy performance contract of the Law Decree 115/2008 allows to solve this problem, and contemporary, to ensure that these interventions made by ESCO could save Energy consumption.

The percentage of saving to be reached is established in the contract, and the fiscal allowance, such as the chance to deduct up to 55% of the works made (as well as the chance of introducing other acts to obtain funding – for example financial leasing contracts), make this contract convenient and interesting for building administration, overcoming the concern the old contracts about “Energy service” and “heating management” raised.

The current scenario: perspectives and critics

The implementation of the European Directive Energy Performance of building (EPBD) is the most important news in the National Law.

However, it is important to stress the slowness and the caution in the approval of the rule, which seem to not affect Italian society.

The society could show a particular concern, above all the private owners, for the introduction of new obligations and expenses linked to the house management and for an additional “red tape”.

So a strong information support and a sensitivity campaign are needed in order to make people aware of the Energy requalification and certification as a valid investment and an economical valorisation of the highest performance buildings, both for rental and buying. An important role, even if geographically discontinued, is played by regional

and local administrations, which, in most cases adopted the goal of the energy requalification, with an important issuing of regional rules and urban and building which set standards and incentives for “sustainable building industry”.

A sample to be shown is the case of Alto Adige Region, where the urban law developed together with the spreading of methods of Energy certifications of independent technical institutions such as “CasaClima” agency.

The strong decentralization of competences in Italy in the last years makes people think that for a full success, not limited to few regions, of Energy requalification it is necessary to have agreements and integrated actions between State and Region.

Concerning the tax allowance, following the implementation of EPBD Directive, it should be paid more attention on global requalification, which should be urged more favourably compared to isolated interventions and should exploit special conditions at the initial step. For example, If the special condition to buy high performance gas boilers responds to a National politic of Energy provision following the agreements with countries producing gas, alone, without any other intervention, it is significant for the heating system.

Interesting experiences at a local level show how public administrations can activate Energy requalification through modest initial investments in technical assistance, needed t o provide owners with the necessary and proper information, so they could decide to invest in Energy requalification-certification of the building. Furthermore, a tax allowance mechanism, like the Italian one, is characterized by a limited spreading in the geographical areas having an underground economy.

URBAN PLANNING FOR HISTORICAL CENTRES AND CULTURAL HERITAGE: THE CASE OF RAVENNA

In the territorial government, town planning is particular important, when its competence is under the Town administration, according to higher level Law (provincial and regional town and territorial plans; sectors plans, such as the Regional landscape plan). The Town planning is divided in general planning and implementing planning; the general planning is divided, in the regions provided with a town planning law, in a structural part and in an operating part. The core of the town planning are the rules and regulations of cultural heritage and the old town centres elements; rules and regulations subordinated to the National law for monument and landscape protection, and to the rules concerning Old Town centres contained in the National Town planning law.

Cultural Heritage

The structural part of the Town planning includes a strategic and regulative dimension, in particular concerning the structural components of the territory, the so called invariants. The structural components include cultural and naturalistic heritage elements, which are detected and regulated according to the Structural plan based on an information system, which starting from the knowledge on a regional scale for landscape planning, is integrated with the local regulation allowing an efficacious regulation for valorisation and preservation. The following documentation sho0ws the experience in Ravenna which recently has been provided with a general regulation divided in a Town Structural Plan (PSC), a Town building plan regulation (RUE), a Town Operation plan. The above mentioned documentation deals in particular with the contents of the table of contents of the Technical Rules of implementation concerning the PSC and RUE cultural heritage. They allow knowing the different components of the cultural and naturalistic heritage for which the related Law is drawn up.

Sistema paesaggistico ambientale		Titolo II Capo 1°	Titolo II Capo 1°
	Rete ecologica ¹	Art.30	Emergenze nei paesaggi
	Aree di interesse archeologico	Art.32	
	Aree archeologiche	Art.32 Co.3	Ambiti agricoli di rilievo paesaggistico
	Aree di potenzialità archeologica	Art.32 Co.4	
	Aree soggette ad ingressione marina	Art.31	Edifici e/o complessi di valore storico architettonico
	Paesaggio	Art.33	Luoghi della riqualificazione ambientale/ecologica/paesaggistica
	Contesti paesistici d' area vasta	Art.33 Co.3	Avn X Ambiti di valorizzazione naturalistica
			Ara X Aree di riqualificazione ambientale ecologica e paesaggistica
			NOTE
			1. Per la classificazione delle componenti della Rete ecologica vedi "Carta descrittiva PSC 2.3"

Figure 1. Ravenna PSC and RUE caption concerning the invariants

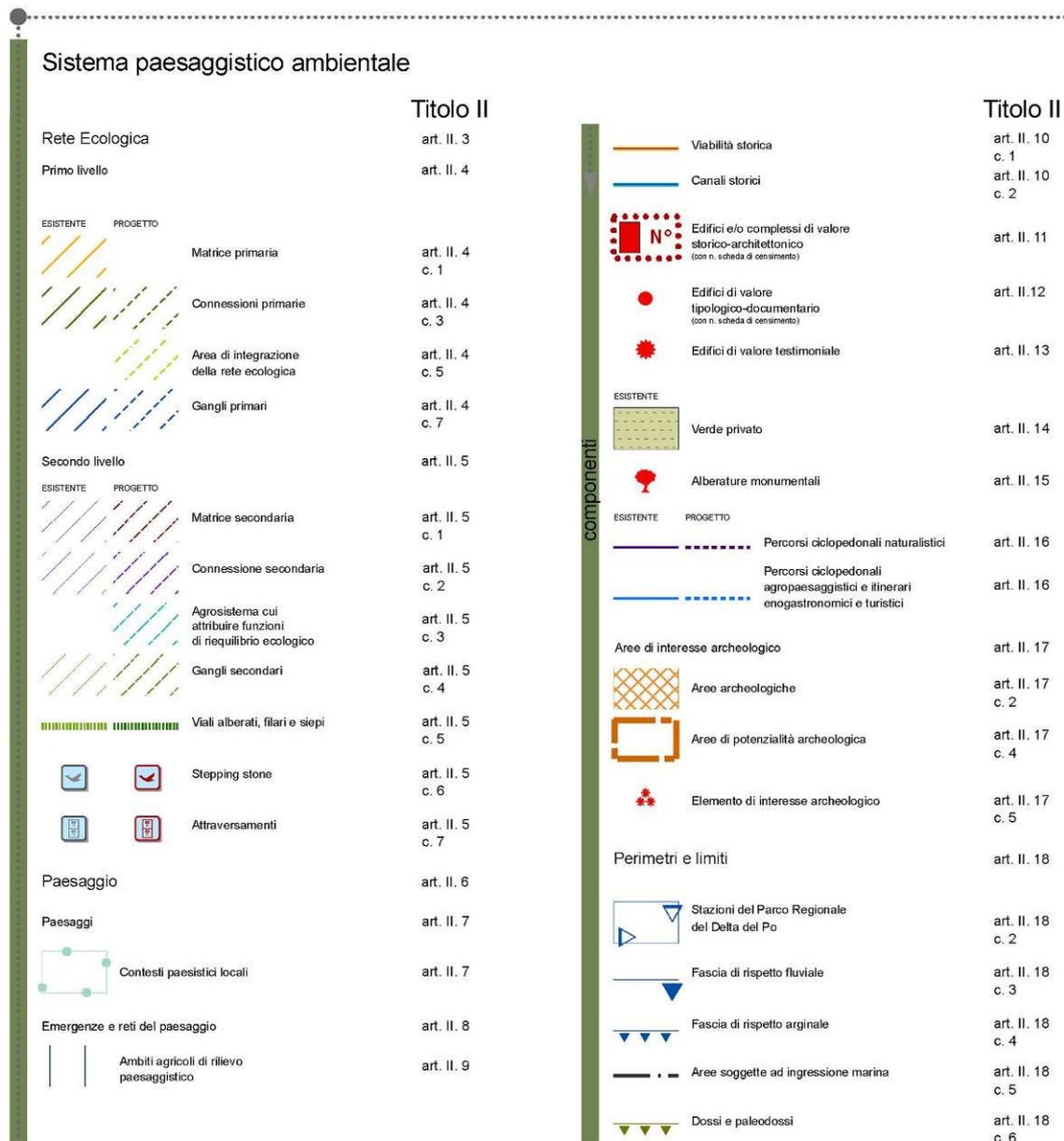


Figure 2. Ravenna PSC and RUE caption concerning the invariants

Old Town centres

The Old Town centres usually are regulated by a direct town planning concerning general transformation and by an indirect planning with more complex and focused actions. The detailed rules can be defined according to the general planning, or according to the implementation planning (detailed planning) with the reference, in case of more complex situations to recovery plans.

The following are three samples of old town centre planning. They are different in terms of position, size and heritage characteristics. They are the samples of Ravenna (seaside town on the Adriatic coast of about 150.000 inhabitants, in the Northern Italy, in Emilia Romagna Region); Matera (inland town of about 60.000 inhabitants, in the Southern Italy, Basilicata Region); Castelluccio di Norcia (a mountain hamlet of Norcia of about 300 inhabitants, in the Centre of Italy, Umbria region) and the National Park of Alta

Murgia (Puglia Region). The different characteristics of the cultural heritage and the different planning approaches are highlighted as follows.

The sample of Ravenna

The innermost nature of the old town centre of Ravenna is the balance between famous monuments, which are part of the town planning history of Europe and Mediterranean region, whose Byzantine component made Ravenna be a UNESCO World Heritage Site, and a base of well preserved buildings. The Old town centre represents consistently and efficiently the history of a town planning and building culture which ensured the continuity and the permanence during the centuries of buildings and ways of life expressing a strong rooting of civil values in Ravenna community.

The city of Ravenna and its old town centre for decades have been expressing a strong planning culture through the renovation of their planning tools, so that the town planning rules regulating the related development reached an important level of quality in the Italian town planning sector. The current town planning of the old town centre is the result of knowledge developed which reached a very efficacious definition both for the preservation and the sustainable transformation. It is formed by the assessment concerning the old town centre contained in the current PRG, including according to the new Regional town planning law the Town Structural Plan (PSC), the Building planning regulation (RUE), and the Town operating plan (POC).

The PSC with a mainly strategic content establishes the following goals and performance to meet and perform for the city (whose town old centre is the most important element):

- the restoration of monuments and their classification according to the valorisation of the morphological-historical, functional and symbolic character in the urban structure and landscape;
- the preservation of the existing buildings, as well as of their specific stratifications, even through the superfetation removal;
- the adjustment, where necessary, of the morphological characters of the recent buildings to the historic ones nearby;
- the detection of elements not adequate to the historical interventions made;
- the reconfiguration, as open space or as built place, compatible with the historical elements nearby, of areas resulting from demolished or to be demolished buildings because not adequate to the context in order to remove and/or substitute the inadequate buildings and to recover or reconsidering the limits of the public space;
- the maintenance of the residential use, as well as of the trade and handicraft activities and their offices which play an important role as artistic-historical value and social and cultural identity;
- the integration of the equipment and the missing services for the residential reinforcement and the execution of other compatible functions;
- the valorisation of Ancient and Middle Age elements, such as routes, settlements, autonomous building elements or structural and decoration elements in structures of next ages;
- the change and the recovery of the exterior (streets, squares, parks and gardens) and interior (courts, botanical gardens and gardens) open spaces as elements structuring the settlement plant.

The PSC defines, concerning its goals, the plan zoning according to the morphological, typological and functional elements of the building and the open spaces, committing the settlement of a direct regulation to the RUE and of an indirect regulation to the POC.

The RUE divided the regulation based on the complexity of the transformation envisaged, maintaining the amount of the existing buildings (building useful surface); it defines in detail the intervention unit, the proper transformation category (from simple maintenance to the building renovation), the possible uses, the implementation modes, (direct, indirect dependent on a project supported by an agreement or a conditioned agreement). The RUE in order to meet the goals established by PSC, envisages, in the different situations detected by the plan, preservation and recovery interventions aimed at preserving the building and urban heritage of the old town centre, as well as transformation interventions of the streets in order to promote degraded areas or areas incompatible with the context due to inappropriate interventions; all of this is made to reassemble the integrity of an identifiable and full of value homogeneous area, to improve its public and private services, as well as to promote the staying of inhabitants which are attracted by better living conditions. To these aims the regulation is divided referring to components families cartographically detected and subject to a specific law. The components are formed by Buildings, Open spaces, Characterization elements.

Buildings, classified according to the dominating value of each unit are:

- Buildings and/or blocks of buildings with a monumental value - UNESCO heritage
- Buildings and/or blocks of buildings with a monumental and architectural value
- Buildings and/or blocks of buildings with an artistic and/or architectural historic value
- Mainly residential buildings with a documentary and/or typological value
- Recently built buildings
- Buildings incompatible with the context: due to architectural characters; due to morphotypological characters, to be demolished and rebuilt with a settled shape, due to morphotypological characters, to be demolished with the chance to be partially built; due to an atypical morphological structure; due to an inadequate morphological structure with a partial transferring of the building rights
- Areas to be rebuilt
- Building superfetation.

Open spaces are classified as follows:

- Areas pertaining to buildings
- Gardens and/or kitchen garden to be kept
- Public and private Parks and gardens of public interest.

The characterization elements are divided in:

- Squares
- Squares and areas to be requalified
- Structuring axes of monumental-touristic interest
- Structuring axes of trade interest
- Green structuring axes.

Each of the above mentioned component is regulated by the law containing the general contents referring the complex transformation, settled in relation to the building and urban characteristics, as well as functional characteristics. The RUE regulation pays particular attention to Public and Private open spaces. Concerning private open spaces, the areas of the buildings are cartographically detected based on the different value related to the building value included in the building unit; so that a higher value degree of the building unit shall correspond to a higher qualitative grade of intervention and control for the area considered. Lastly, Gardens or private kitchen gardens are to be

maintained for their substance, size and/or tree presence, in order to maintain the continuity of the green network. Concerning the public open spaces the RUE acknowledges and enhances its functional and morphological importance for the restoration in the old town centre and for a better use of it.



Figure 3. Aerial photo of Ravenna old centre

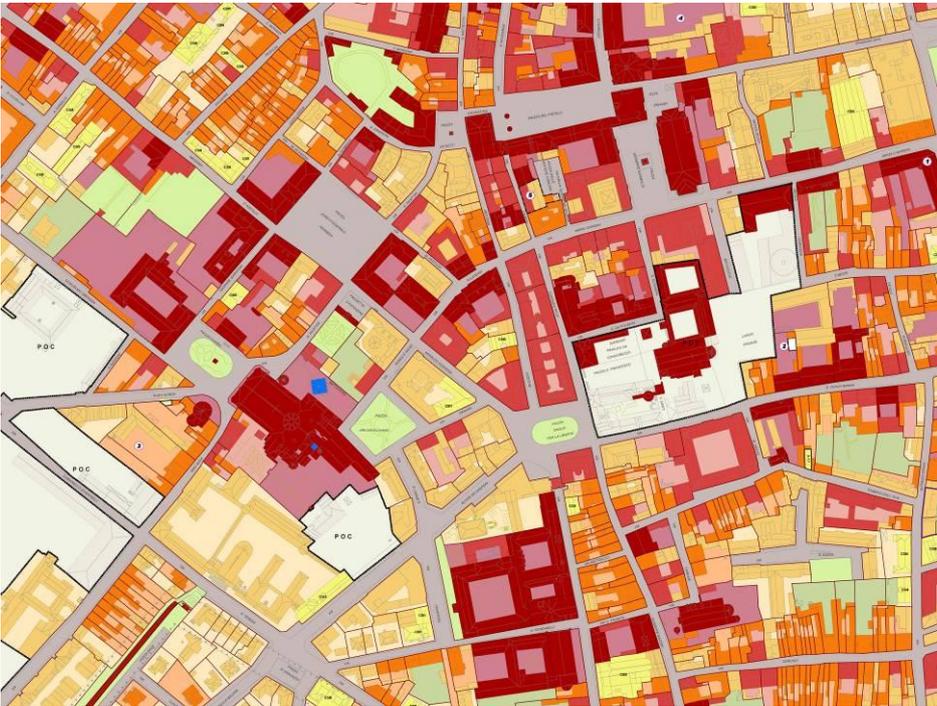


Figure 4a. Extract of the old town centre plan and RUE caption

Spazio urbano		Titolo VI	
	Città storica	art. VI. 4	
	Perimetro di Città Storica	art. VI. 4	
	Edifici		
	CSU - Edifici e/o complessi di valore monumentale - Patrimonio UNESCO	art. VI. 6	
	CSM - Edifici e/o complessi di valore architettonico e monumentale	art. VI. 7	
	CSA - Edifici e/o complessi di valore storico artistico e/o architettonico	art. VI. 8	
	CSD - Edifici prevalentemente residenziali di valore documentario e/o tipologico	art. VI. 9	
	CSR - Edifici di recente edificazione	art. VI. 10	
	CSI - Edifici incompatibili con il contesto	art. VI. 11	
	CS11 - Per caratteri architettonici	art. VI. 11 c. 4	
	CS12 - Per caratteri morfologici da demolire e riedificare con sagoma prestabilita	art. VI. 11 c. 5	
	CS13 - Per caratteri morfologici da demolire con possibilità di parziale riedificazione	art. VI. 11 c. 6	
	CS14 - Per assetto morfologico atipico	art. VI. 11 c. 7	
	CS15 - Per assetto morfologico incongruo a modificazione favorita con trasferimento parziale dei diritti edificatori	art. VI. 11 c. 8	
	Are da riedificare	art. VI. 12	
	Superfetazione edilizia	art. VI. 13	
	Sottoportico ad uso pubblico		
	Spazi aperti		
	Are di pertinenza in ambito di valore monumentale e architettonico	art. VI. 14	
	Are di pertinenza in ambito di valore storico artistico e/o architettonico	art. VI. 14	
	Are di pertinenza in ambito di valore storico documentario e/o tipologico	art. VI. 14	
	Are di pertinenza degli edifici	art. VI. 14	
	Giardini e/o orti privati da conservare	art. VI. 15	
	Verde pubblico e privato di interesse pubblico	artt. II. 31-35	
	Modalità attuative		
	Ue -Delimitazioni delle unità edilizie	art. I. 1 c. 11	
	Ambiti soggetti ad attuazione indiretta ordinaria. PUA/PU approvati	art. I. 11	
	Area ad attuazione diretta previo progetto unitario (PUAO - PUC - PUCAP)	art. I. 9	
	Are pubbliche soggette a meccanismo compensativo	art. I. 13	
	Obiettivo di località	art. I. 12	

Figure 4b. Extract of the old town centre plan and RUE caption

The first POC (2010-2015), now in counter reduction, completes the building process of Ravenna PRG and of the old town centre too. In particular, for the old town centre in the first POC all the sections referred to the POC by PSC and RUE are included to be executed, referring to the chance of enhancing and executing the requalification and reuse of the existing city, as provided for by the R. L. 6/2009. For these sections (Mura di Porta Cybo, ex Amga, Santo Stefano degli Ulivi, largo Firenze, Santa Teresa, Convento dei Cappuccini, ex Cinema Roma, Caserma Dante Alighieri, ex Falegnameria comunale, ex Macello), the POC specifies the building potential, public and private uses, public standards, types of intervention, additional costs, limitations and performance to be reached with the PUA (execution plan).

ENERGY MANAGEMENT AND RULES FOR SMALL SETTLEMENTS AND FARMS IN RURAL AND PROTECTED AREAS: THE CASE OF THE NATIONAL PARK OF ALTA MURGIA IN PUGLIA

The tridimensional plan: rules, strategies and projects

The Plan, together with the rules, is the main tool for regulating the activities of the Park transformation and management. The Plan defines the subdivision in areas with different preservation levels and, through the technical implementation rules, establishes the allowed and not allowed transformations. It is different from the

regulation since the latter does not regulate the territory transformation, but it regulates the activities performed in the territory or to define the way they have to be performed. The Park plan regulation prevails, even substitutes, the law about urban and territory plans of any levels. It means, for example, that the Town urban building plans regulation, if contrasting, is substituted by the Park regulation.

This is an important chance to make the Park territory regulation organic; this does not mean to make it more restrictive, but it can allow to introduce rule facilitation easing the development of activities consistent with the development of the park, such as multifunctional activities and extensive zootechnics. In some cases it was possible to verify in the some companies that some farms had problems in adjusting the production structures according also to the Town regulation. These problems can be overcome thanks to the Park regulation.

But the “regulative” dimension is just an aspect of the Park plan. Another important aspect is the “strategic” and “planning” dimension. It is important to note the Plan is a territorial project, follows a general strategy of preservation and development and it includes not only a series of rules, but also a series of projects, with the Park itself acting as an engine.

Strategic and Planning dimension

During the plan settlement, a Strategic agenda was envisaged with meeting and workshops. The Plan enhanced and focused on the Park strategies, stimulating synergies and organizing consistently and globally all the projects regarding the territory.

The plan absorbed the results of this strategic reflection, which marked the route, the direction to the regulation drawing up and the choice of project and action guidelines. The choice of the projects concerned not only the natural resources preservation, but also the projects necessary to increase social and economic development of the territory. To choose the projects, two base principles of territorial and touristic marketing were chosen: 1. to detect the distinguishing subject. 2. To create a global system.

The plan, as a territorial project, is consistent in avoiding waste of projects. This characteristic, i.e. the ability in offering a wide and consistent territorial strategy, if properly exploited, can be important in the area of Regional and European Community funding.

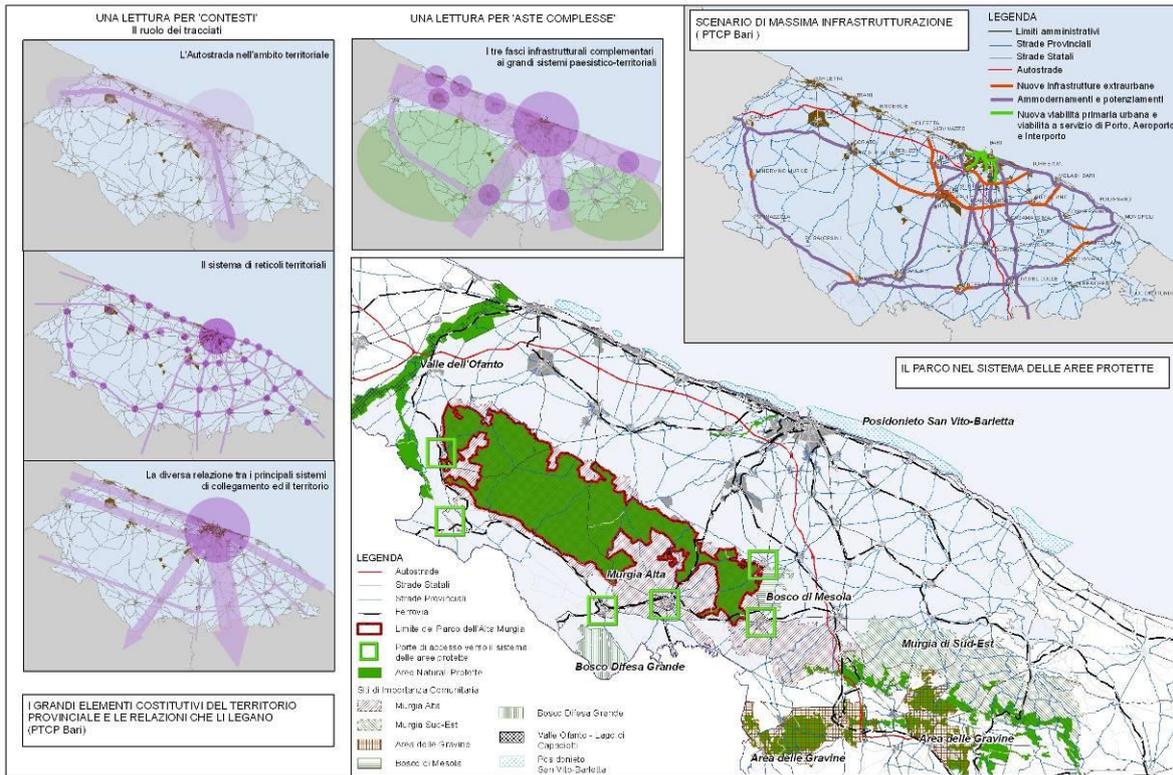


Figure 5. Territorial schemes for the National Park Plan of the Alta Murgia



Figure 6. Programme-Manifest of the thematic participatory Seminars, June 2009

Parco Nazionale dell'Alta Murgia: progetti e politiche creative per il paesaggio



Il protocollo d'intesa tra Parco e Regione
Nel 2008 il Parco Nazionale dell'Alta Murgia e la Regione Puglia firmano un protocollo d'intesa per le azioni di accompagnamento alla redazione del Piano Paesaggistico Territoriale Regionale e del Piano Regionale del Parco.

Il protocollo prevede la condivisione delle banche dati e dei quadri concettuali e la promozione di progetti sperimentali:

- Progetto di riqualificazione e paesaggio:** Finalizzato a un regolamento urbanistico ed edilizio delle attività costruttive e infrastrutturali sia di recupero che di prevenzione di interventi dei singoli comuni nell'Alta Murgia con finalità di riqualificazione multifunzionale del paesaggio.
- Linee guida per la tipologia costruttiva (tipologie agricole):** (Linee costruttive autoctone, energetiche, agrarie, artigianali e residenziali e di servizi paesaggistici) con l'attuazione di meccanismi di incentivazione.
- Progetto di riqualificazione del territorio rurale:** Finalizzato a un regolamento urbanistico ed edilizio delle attività costruttive e infrastrutturali sia di recupero che di prevenzione di interventi dei singoli comuni nell'Alta Murgia con finalità di riqualificazione multifunzionale del paesaggio.
- Piano prioritario di recupero e fini paesaggistici:** Finalizzato a un regolamento urbanistico ed edilizio delle attività costruttive e infrastrutturali sia di recupero che di prevenzione di interventi dei singoli comuni nell'Alta Murgia con finalità di riqualificazione multifunzionale del paesaggio.
- Spurizzazione della nuova legge sulla attività costruttive:** Finalizzato a un regolamento urbanistico ed edilizio delle attività costruttive e infrastrutturali sia di recupero che di prevenzione di interventi dei singoli comuni nell'Alta Murgia con finalità di riqualificazione multifunzionale del paesaggio.

Verso una Agenda dei Temi del Piano per il Parco
Le prime indicazioni dalla partecipazione:
"un parco agricolo" (associazioni agricole)
"un parco per la difesa della cultura e delle tradizioni locali" (associazioni culturali e Comuni)
"un parco geologico" (associazioni culturali e ambientaliste)
"un parco paesaggistico" (associazioni culturali e ambientaliste, Comuni)
"insieme per uno sviluppo turistico di qualità nei centri e circuiti minori" (Comuni)
"insieme per una maggiore sicurezza e una migliore gestione dell'ambiente" (associazioni agricole, Comuni, associazioni ambientaliste)
"insieme per la valorizzazione e per agevolare l'economia locale" (associazioni di categoria, Comuni, ordini professionali)

Il Parco Nazionale dell'Alta Murgia e le Linee guida del Piano Paesaggistico
Il Piano Paesaggistico Territoriale Regionale ha previsto la predisposizione di linee guida (in forma di regolamenti, manuali, abachi) secondo l'indicazione del Codice (art. 143 comma 4). Il Piano può individuare anche linee guida prioritarie per progetti di conservazione, recupero, riqualificazione, valorizzazione e gestione di aree regionali, individuando gli strumenti di attuazione, comprese le misure incentivanti.
Le linee guida, individuate fino ad ora, riguardano alcuni temi di particolare importanza per il Parco dell'Alta Murgia:
Linee guida per il **restauro dei manufatti agricoli storici e delle aree di pertinenza**
Linee guida per la **riqualificazione multifunzionale dei paesaggi agrari storici**
Linee guida per il **recupero delle perdite degradate**
Linee guida per la **riqualificazione paesaggistica e tutela delle cave dismesse**
In accordo con l'Ente Parco tra le linee guida è prevista anche l'elaborazione di un **regolamento urbanistico ed edilizio** delle tipologie edilizie, costruttive urbanistiche e infrastrutturali per il Parco dell'Alta Murgia.

Un'immagine guida per il Piano del Parco
Un paesaggio "tascato", ricco di fascino e di linee naturali.
Un ponte tra l'aspetto della scoperta del tempo e il paesaggio di oggi.
Un "tascato" dove il piacere aperto del letto abitato si accompagna all'altare silenzioso del sole posato e dei suoi raggi e al ricamo dei tetti neri, che si dipanano sul verde, tra cantele, grembi, all'ombra di gigli di pietra, costole di maniche massicce.
Un "tascato" dove il piacere aperto del letto abitato si accompagna all'altare silenzioso del sole posato e dei suoi raggi e al ricamo dei tetti neri, che si dipanano sul verde, tra cantele, grembi, all'ombra di gigli di pietra, costole di maniche massicce.

Il paesaggio partecipato
L'elemento della partecipazione per la tutela, la promozione e la gestione del paesaggio costruito in forme diverse per il trattamento di politiche di paesaggio basate sul meccanismo "comunità e territorio" appare in modo determinante in termini di rispetto, coerenza e applicabilità e rispetto gli eventuali abusi.
L'elemento partecipativo è costituito dalla collaborazione delle politiche per il paesaggio costruite in forme diverse per il trattamento di politiche di paesaggio basate sul meccanismo "comunità e territorio" appare in modo determinante in termini di rispetto, coerenza e applicabilità e rispetto gli eventuali abusi.

Politiche creative e integrate
Il superamento del meccanismo di comando e controllo richiede la sperimentazione di nuove modalità di coinvolgimento degli attori sociali ed economici che determinano la formazione e la gestione del paesaggio. Sono così necessarie politiche creative per la tutela e la promozione della qualità del paesaggio. Queste politiche sono costruite in forme diverse per il trattamento di politiche di paesaggio basate sul meccanismo "comunità e territorio" appare in modo determinante in termini di rispetto, coerenza e applicabilità e rispetto gli eventuali abusi.

Paesaggio come risorsa strategica collettiva
Insieme insieme degli elementi che caratterizzano l'ambiente che ospita una comunità, il paesaggio è risorsa collettiva e contribuisce a determinare la qualità percettiva e l'identità degli spazi di vita e di lavoro.
Il paesaggio è risorsa collettiva anche in quanto garantisce la possibilità di uno sviluppo e una coerenza collettiva con altre comunità.
Il paesaggio è, per questo, elemento determinante dell'immagine che una comunità offre al suo esterno e ne testimonia il grado di civiltà e la capacità di accoglienza.
Il paesaggio rappresenta una risorsa da valorizzare per lo sviluppo di interventi economici e, insieme, per la tutela e la valorizzazione del paesaggio rurale e delle produzioni artigianali e materiche e delle opere di legge di una comunità.

Figure 7. Conference of the area of Regione Puglia - December 2008

Attention to the landscape

If the landscape is the global perception of a territory, according to a universal and not specialist vision, it is not possible to talk about the landscape government as a policy separated from the more general objective if the territorial government. At the same time, in the Park Plan, the landscape criterion is not restricted into specific rules, but it is found in all the Plan and regulation, with specific references to the UNESCO site of Castel del Monte, in the territory of the National Park.

The strategic organization of the plan, the organization of the territory in areas with different levels of preservation, the related rules and regulations, the rules for the pastures and forest management and many other rules are all referred to the landscape dimension. Hence, it is not possible to talk about decisions and rules concerning the landscape of the Plan and Regulation without talking about the Plan and the Regulation globally.

Anyway, there are some points of the Plan in which the landscape has a specific importance. From the regulation point of view the landscape regulation concerns the limitations on the Aeolian paddles and towers, which are important for the problem on the impact on the wild avifauna, and the limitations to the extension and positioning of thermal solar and photovoltaic panels (art. 34 of the Regulations). A big part of the Title IV of the Regulations, "Rules for the valorization of cultural and identity values and goods", opening with art. 29 Preservation and promotion of Alta Murgia landscape, is directly linked to the landscape.

Many projects have a direct landscape involvement. Among these there are the projects aimed at creating routes of "slow mobility" and exploiting the extraordinary landscape routes of the crossing railway and sheep-tracks. A specific attachment to the plan "The rural Architecture of the National Park of Alta Murgia: Typologies and

guidelines for the recovery and the reuse” shows the principles and the criteria to recover existing buildings according to Murgia rural landscape.

Energy management

From the regulation point of view the landscape regulation concerns the limitations on the Aeolian paddles and towers, which are important for the problem on the impact on the wild avifauna, and the limitations to the extension and positioning of thermal solar and photovoltaic panels. In particular, art. 34 sections and 2 of the Regulations prohibits in all the park to install aerogenerators higher than 25 meters, imposing limitations in terms of size, number and distance. The aerogenerator installation is allowed exclusively in the areas C and D, following the Authority approval, which considers the landscape and environment impact, within the following conditions:

1. Maximum size of the aerogenerator 5 m;
2. Maximum height form the floor 25 m;
3. Maximum distance from the houses 100 m;
4. Maximum of 3 supporting towers for teach production company;
5. Minimum distance among the plant sites 300 m.

The Park regulations prohibits big Aeolian paddles but allows to face a new experience based on aerogenerators of 1-200 KW which exploit tangent winds higher than 4-5 meters that can provide energy for a house or for a holiday farm. A new generation of aerogenerators, smaller and more sensitive to low level winds, technologically innovative but more aesthetically considerable are an important element for sensitive environments and preserved landscapes.



Figure 10. Areogenerator, arch. Renzo Piano 2010

Together with the other renewable energies, such as photovoltaic and geothermal energies, the miniaeolian Energy fatherly integrated the micro generation ability. Through a spread microgeneration, each building is transformed in a small power plant

powered by renewable energies and linked to smart grids, lessening the charges of the system itself which is used more efficiently.

The use of solar, thermal and photovoltaic panels is allowed on building and rural building roofs, as coverage and for parking areas and services areas, for wells and other technological systems. If due to technical, architectonic or landscape reasons buildings and rural buildings coverage do not fit the solar panel system, the installation of such panels is allowed on the floor with the same measure as the coverage surfaces. In the case of systems on the floor for parking areas and other services the system height won't be higher than m 3,00. Except for isolated systems, for lightning, boards, wells and technological systems, security systems for which a higher height is allowed, for the security of the system and for other needs.

The solar panels on buildings which have a historical and landscape value are subject to a Landscape compatibility evaluation. The whole extension authorized by the Park Authority following the approval of the Landscape report presented won't exceed 20% of the coverage surface. The use of the solar panels on buildings built following 1942 is not subject to limitations, except for those buildings which have limitation due to the artistic interest of the building.

Beyond the regulatory profile, the Energy issue is investigated in terms of strategic and planning terms in the Park planning.

The Energy management refers to the following:

– Investigational syndicated project for the use of solar and photovoltaic systems in the agro-zootechnical companies including an integrated Investigational syndicated project homogeneous areas for the transferring of the energy surplus to green grids.

The exploitation of renewable sources, such as photovoltaic source, allows to produce considerable amount of electric power, which can be higher than the local consumption. The electric power surplus can be moved to the National network of energy supply. Beyond a direct economic benefit, supporting companies, the producing of an energy surplus in a green and sustainable way (according to the rule of the Park body) and a distribution to local users could mean the use of less fossil fuels to cover local energy needs and fewer emissions. From a juridical and management point of view, in order to develop a coordinated territorial initiative, two tools able to foster these initiatives are to be used.

- Electric power autoproducer (ex Law Decree n.79/99) as juridical entity producing electric power and uses less than 70% for its use.
- ESCO - Energy Service Company (ex MD 20.07.2004) are companies, including crafts and syndicated companies, which at the date of the beginning of the project have as social objective - even non exclusive objective – the offering of integrated services to realize and then to manage interventions in the energy sector.

– Masseria Murgiana of XXI century project

The project envisages the environmental and Energy qualification of Murgia farms in order to support economy and to promote a renewed model of sustainable management of the National Park of Alta Murgia, together with the continuity of agriculture, architecture and local traditions.

According to the PEAR (Piano Energetico Ambientale Regionale – Regional environment Energy plan) of Puglia, “the commitment of the farm concerning the energy saving is included in the concept of the development of the farm which shall produce local and renewable Energy production (first of all biomasses, but Aeolian and solar sources), as well as the correct management of its activities. In particular, The farm holidays companies can have a better visibility going on this direction.”

The Project is divided in 3 stages:

- Stage 1: Drawing up of guidelines, planning and economic technical reports of intervention for Masseria murgiana of the XXI century.
- Stage 2: Feasibility study for the realization of a Sample farm: detection, feasibility analysis and draft project.
- Stage 3: Monitoring, Auditing and technical Support to the Farms and holydays Farms in Alta Murgia.

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