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Territorial strategies and environmental continuity in mountain systems:
The case of the Apennines (Italy)
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ABSTRACT

This paper refers to the APE (Apennines Park of Europe) project launched in Italy in 2000 by the Interministerial Committee for Economic Planning (CIPE) with a view to promoting the enhancement of the entire Apennine system within the European context. The authors begin by highlighting the role that the Apennine system – one of the major European mountain systems – can play in the building of a European Ecological Network and, more generally, in nature conservation and the improvement of the quality of the environment in the Euro-Mediterranean context. In this context, particular importance is given to the system of longitudinal and transverse environmental linkages, which may be strengthened and enhanced to favour the territorial integration of the Apennines. The authors also outline potential scenarios and briefly describe the strategies that the APE Project intends to develop.

The paper is largely based on a study carried out in 2000-2001 for the Ministry of the Environment of Italy (Nature Conservation Service) by a group of 8 university institutes co-ordinated by the European Documentation Centre on Nature Park Planning (CED-PPN) which since 1990 developed a number of researches on European conservation policies (Gambino, 1994,1997,1999), on other research national programs as Planeco Project (Romano, 1999) and on some documents implemented in the context of Life Econet Project (Cheshire County Council, 1999).

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APE IN THE EURO-MEDITERRANEAN CONTEXT

The key aim of the APE project is the integration of the Apennine system in the European context. The project is based on a Strategic Organisation Plan, the purpose of which is to highlight any strengths or weaknesses, risks or opportunities that need to be taken into consideration in a European, or more specifically Euro-Mediterranean, perspective.

Current and potential scenarios, on which the strategies to enhance the Apennines are based, are outlined in this broader perspective. The acknowledgement of the complex role that the Apennine system can play as a “connecting bridge” between the Alps – the threshold to the economic and productive “heart” of central Europe – and the Mediterranean, which the peninsula stretches towards, underlies these strategies.

Figure 1 – Protected Areas in Europe
(National Parks – Large symbol, Regional and other protected areas-small symbol)

A role that, of course, is tied to a long history of relations, trade and cultural exchanges, but that has its basis in the shape and particular geographical setting of the Apennines, in relation to the development issues and prospects of both central Europe and the Mediterranean basin.

In order to appreciate the importance of the Apennines in the Euro-Mediterranean context, it is necessary to consider the role played by the system of Parks and Protected Areas, especially those found in the main mountain systems (Gambino, 1999).

Nature parks have to play a key role in the European ecological network. Despite the difficulty in finding a precise definition (owing to the great variety of classifications used by European countries) this word can cover a very important set of European protected areas, including both “national” and “regional” parks (Gambino et alii, 1997).

These are classified in many different ways by national legislations, not corresponding to IUCN classification.

Thanks to their remarkable growth in the last decades – from 64 units covering less than 40,000 km$^2$ in the ‘50s, to 667 spread over 264,921 km$^2$ in 1999 – “nature parks” cover nearly 5% of the total surface and have an important impact on European regions, in ecological, economic, social and cultural terms. This spectacular growth has been characterized by strong diversification of national and regional situations. Density and spatial distribution of nature parks are not uniform, depending on different national and regional environmental policies (for instance, no nature parks in Denmark, where conservation policies affect the whole territory). Above all, the spread of nature parks has taken place in very different environmental, economic, political and cultural contexts. It has developed in the absence of coordinated initiatives with exceptions, in some countries at the national level. This is why nature parks represent today in Europe a fragmented mosaic, rather than a real “system” of protected areas.

Owing to their recent and pervasive spread, most European parks are not located in the wilderness, far from metropolitan and urban areas (as was the case of the first national parks, such as Engadine in Switzerland, Gran Paradiso, Abruzzi or Stelvio in Italy), but very close to urban and industrial areas or even within them. Most of them are exposed to growing pressure, which is all the more threatening as parks are often very small in size (the average size being less than 400 km$^2$ and less than 50 km$^2$ for 32% of them).

If we combine the degree of pressure exerted by the surrounding context with the size of the parks, we can see that the old image of “nature sanctuary” still applies to only a few of them. While most of them (73%) lie in rural landscapes, an important share (21%) appear as “besieged isles”, small natural or semi-natural spaces surrounded by an increasingly hostile context, and another part (3%) look more like “urban parks”.

The spread of nature parks in Europe has therefore stressed their traditional character of human landscapes, their cultural and social importance.
and their dependence on social and economic processes. Most of them (such as many parks of the German Lander, many French regional parks and some Italian parks) include important human settlements: the National Parks of Cilento and Vallo di Diano, in the south of Italy, encompasses nearly 300,000 people on a surface of 1,800 km$^2$.

Nature parks (national and regional) located in mountain systems are now nearly 300, covering a surface of more than 140,000 km$^2$ and account for more than the 11% of the total surface of those systems.

Moreover, nearly 70% of mountain parks (27% of total European parks) are located in 8 mountain systems: Scandinavian Alps, Cantabrian M., Pyrenees, Alps, Apennines, Bohemian Forest, Carpathians M., Dinaric Alps. This concentration means that mountain systems, on average, are three times richer in nature parks than other territories. Some of them host important chains of parks and it is not surprising that park location policies have generally preferred poorly inhabited areas, far from urban and industrial districts. It is noteworthy that mountain parks and protected areas are normally surrounded and connected by “natural” areas, such as forests or moors, having a low degree of human pressure and a high landscape value. Furthermore, we may observe that the establishment of specially protected areas in mountain systems is likely to continue, since a large number of mountains of enormous ecological, cultural, and landscape interest – first of all the Mont Blanc, where a cross-border French-Swiss-Italian initiative is in the pipeline – still lack special protection.

Among the mountain systems, the Apennines have a special character and role. The Apennines are the “Mediterranean” mountains par excellence and also one of the major mountain systems of the continent. Stretching for over 1,500 km from the Alps to Sicily, they cut across the entire peninsula at almost 8 different degrees of latitudinal variation, linking profoundly different climatic regions and environmental settings. Moving away from the Alps, the Apennine range acquires increasingly “peripheral” features southwards, compared with the continental development hubs. However these are offset by the centrality of the Apennines vis-à-vis the Mediterranean basin in the southernmost tip, which today seems to be the basic condition for the enhancement of the role of this peninsular mountain range.

The mountain system of the Apennines is expected to play a special role in the building of the European Ecological Network (EECONET) (Bennet, 1994), which between the temperate and Mediterranean belts is characterised by a long region with a good degree of almost seamless wilderness and high bio-permeability. This is also confirmed by the concentration of protected areas found in the Apennines, which boast a share of protected land, in regional or national Parks, equal to 22% - almost double the average of European mountain systems (12%). Compared with European systems, the Apennine mountain parks as a whole distinguish themselves by average size (over 40,000 hectares), number of adjacent parks and dominant features of the habitats adjacent to protected areas. As evidenced by the cited studies carried out by Ced Ppn, the environmental settings where the Apennine parks are found are marked by average-to-low man-made pressure in two thirds of cases and average pressure in the remaining third, while similar figures for southern European countries as a whole are 45% and 16% respectively.
In addition to regional and national protected areas, areas that are of interest to the European Community also have to be taken into consideration, such as Special Protection Areas (SPAs) and Sites of Community Importance (SCIs) introduced by Nature 2000 Program (Habitat Directive 92/43/EEC) (Mc Lennan, 1999, Bacon, 2000). Special Protection Areas overlap significantly with protected areas (68% of the surface at national level), besides overlapping often in turn with SCIs.

The territory falling under SCIs is even more significant, as it covers a surface that is greater than that of established protected areas in Italy (14% over 11% of protected areas), although figures vary considerably from region to region. Out of 4 million hectares identified as SCIs, those included in protected areas account for 39% of total SCIs surface.

In the Apennine system, SCIs cover the territory over 1,000 m above sea level almost entirely, forming an almost seamless belt often adjacent to protected areas and including grazing land or lake areas. In the Apennine mountain areas, the surface of protected areas, plus that of SCIs not falling within them, accounts for 25% of the territory.

The foregoing remarks confirm the mostly rural character and wilderness of the Apennine, which can also be found in the Apennine parks, distinguishing them from other European protected areas.

The number of protected and natural areas in the Apennine range seems all the more important, if we extend our scope to the Mediterranean basin and the links between its development issues and the environmental protection issues of European countries overlooking the Mediterranean sea. These links have been taken into account in the Mediterranean Action Plan since 1975: in the 1995 review (MAP II), the environmental protection aims mention the responsibilities of European coastal countries (it is sufficient to think of the pollutants discharged by them) with regard to sustainable development objectives. In the joint effort to restore an environmental balance on which development and the improvement of the quality of life in all Mediterranean countries rest, the role of European countries, especially Spain, France and Italy, is decisive, both from the standpoint of the environmental pressure they generate and the “responses” that they can provide.

Among these, it is important to take into consideration protected areas, scarce in most countries of the southern arc and relatively numerous in European countries: according to 1997 IUCN figures (the only ones available for all Mediterranean countries), 91% of protected areas in Mediterranean countries is found in Europe, and mainly in the aforementioned three countries. Although it is foreseeable that the contribution to nature conservation of emerging countries will grow significantly in the years to come, the key role of European countries, and especially the Apennine range with its previously described enviable features, is extremely clear.

More specific environmental contributions may be identified with regard to given linkages, such as bird migration routes, especially for flows between Central Africa and Northern Europe via the
Tyrrenian coast and islands, the flows between Spain and eastern Africa via smaller islands and the flows between the Red Sea and Europe via the Balkan coastline, which also concern some nodes along the Adriatic coast. Moreover, the contribution of the Apennine range could increase significantly, thus involving the inland waterway network, as foreseen by the European Ecological Network, and enhancing the intricate system of transverse linkages connecting the mountains to the sea on both sides: linkages that also have important historical, use-related and cultural relations. And it is in this more complex and significant version that APE may be seen as a large greenway, a green belt unwinding along the peninsula and linking Europe to the Mediterranean.

The foregoing consideration brings us to the issue of the place that the Apennine system occupies or should occupy in European programmes. To this regard, there is currently no specific recognition of the Apennine range (unlike the Alps) in the fundamental documents on the organisation of the European territory.

We then have to ask ourselves which European issues APE can attempt to address, that is to say what forms of use of the Apennines can be stimulated through the APE Project. As far as tourism is concerned, for example, available data on the number of foreign tourists show that the Apennines, with the virtually sole exception of Umbria, are far less attractive than coastal areas today. The APE Project therefore entails a great effort to increase the attractiveness of the Apennine range for tourists at European level, by trying to channel the ongoing significant growth of nature-based tourism and emerging forms of social and cultural tourism (as for example educational tourism) which may find a wealth of underused destinations, resources and services in the Apennine system.

In essence, within the Euro-Mediterranean context, the Apennine system seems to have great potential for success and yet is very weak from the standpoint of its overall image (a “corporate identity” is lacking), widespread perception and institutional recognition.

All this contributes to drawing attention to the fact that, at European level, the only unitary image of the Apennines seems to be the one based on the continuity and physiographical individuality of a mountain range, which makes up the backbone of the Italian peninsula, from the Alps to the middle of the Mediterranean. Furthermore, this geomorphological continuity is the key element of environmental continuity, which is of utmost importance to the European ecological network. However, this idea of the Apennine system, albeit important in view of European environmental planning, continues to convey a weak image, as it is relatively recent and its understanding is, for the time being, restricted to the scientific world. It may be strengthened and spread in mass perception and culture, if translated into a set of unitary measures and actions that may be perceived by people across Europe.

It should be said that today there is a European perception of individual parts and specific elements of the Apennine environment and resources. These need to be networked and this operation can exploit the existing strong image at European level: that of the Italian peninsula as a network of art cities and a virtually seamless coastal strip that may be used to enjoy the seaside and the landscape. The fact that these strong elements lie essentially outside the system of Apennine highlands should not make us forget the ties of geographical proximity they have with this system. By emphasising these ties, the image of the Apennines can also become unitary, thus connecting a diversified system of environmental, landscape and cultural resources which today are identified with a discontinuous group of territories of limited size. An important role is already played by parks and protected areas, historical and artistic town centres with their interconnecting circuits and many local systems with their offering of characteristic products, cultural events and hotel and home accommodation.

Photo 2 – Pastures and woods in the Sibillini National Park (Marche-Umbria);

GEOGRAPHICAL AND ENVIRONMENTAL RELATIONS

Two potential connection lines between the various protected areas may be identified, in accordance with the dual role that the Apennines can play in the national and European systems:

- the *longitudinal* system, the Apennine
‘greenway’, supported by the system of Parks of the main Backbone, which may be interconnected and contribute to the strengthening of the system of existing ecological networks within it; and a system of towns that potentially can perform the functions of monitoring and supporting mountain area enhancement policies;

- the transverse system, structured along the connection lines that join the “major backbone” to the “coastal” system, represented mainly by the hydrographical network, but also by the historical crossing routes that for centuries have linked the communities on both sides of the peninsula; here protected areas can play an important function in recovering environmental continuity that has been interrupted partly by recent development.

The system of transverse connections therefore seems more complex than the longitudinal one, because it includes territories affected by issues of varying nature, where the interference of man prevails and environmental continuity has to be restored in part.

The studies on the backbone of the Italian peninsula have highlighted time and again the presence of Apennine sub-areas where logical or preferential concentrations, characterisations and relations can be recognised.

This is the case of protected areas and areas of national naturalistic importance, concentrated along the backbone at least at two latitudinal levels, central and mid-south, which are two areas of great strategic importance in the national and European environmental context.

Expanding on the issue of environmental continuity (Pungetti & Romano, 2003), several causes of concern emerge, such as the interrupted continuity of the Apennine range in Campania and Lucania, where connections with natural and semi-natural areas (biopermeability areas) seem cut off and this clearly has significant effects on the ecosystems, as already claimed in several naturalistic studies (Battisti & Contoli, 1995). On the basis of analyses on the pattern of bio-permeability and the distribution of the main man-made barriers, Environmental Cohesion Units have been identified, as territorial units separated by important barriers with a high degree of obstruction of estimated types of biological dispersion (multiple roads, coupled by towns and industrial areas), in addition to being marked by internal fragmentation and limited obstructiveness, where however it is possible to achieve environmental defragmentation through local actions requiring limited funds, technical expertise and political and social commitment.

Eight large Environmental Cohesion Units have been found, covering approximately 6.878.040 ha of Apennine land overall (Romano,2000). The direct comparison of the foregoing geographies seems to confirm the differences between the previously described “longitudinal” and “transverse” systems.

One of the main difficulties in managing a longitudinal system lies in the lack of suitable regulatory and planning tools for the governance of areas which cannot be considered protected areas in the true meaning of the term, but play an ecosystem-related and relational role requiring ad hoc means to watch over contingent changes. Today, “ecological corridors” or “environmental linkage areas” are not recognised by the official nomenclature or by legislation and it is therefore very difficult to include them as planning and management tools.

The transverse system, instead, has several weaknesses: environmental quality generally tends to wane as one moves away from watersheds, due to increasing aggression by man, especially on rivers. As far as environmental fragmentation is concerned, the major barriers, with more significant degrees of obstruction of ecological potentialities, can be found transversally, interrupting major latitudinal cohesions.

The transverse and longitudinal systems in the area of the Apennines, that historically have marked the development of the area, currently seem to play a significant role again, as a result of the phenomena they support.

Undoubtedly, in a similarly outlined geometrical picture, there can be issues that we may identify, on the one hand, while on the other there can be “networked” relations and interference between many government bodies in the area, such as those responsible for infrastructure, environment and relations and last but not least industry and
economic and social issues, which also seem to be organised longitudinally.

Traditional policies tend to acknowledge the predominance of coastal areas and seek to link mountain and coastal areas by means of increasingly fast and environmentally isolating transverse infrastructure. Old and historically characterising ties, based on physical continuity and relational links, have been lost and entail considerable problems. An example is the Gargano National Park, which today is totally separated from any possible environmental relation with the ecosystems of the Apennine range, due to significant concentration of infrastructure parallel to the Adriatic coast that isolates it entirely.

Using the idea of the longitudinal and transverse systems, which seem to be particularly suited to the landscape and environment, as they are very consistent with national historical dynamics, besides the morphology, it may be useful to apply this geometrical matrix grid to the development of future scenarios and environmental management policies.

Photo 4 – High mountains in winter in Gran Sasso-Monti della Laga National Park (Abruzzo);

POTENTIAL SCENARIOS

The strategic organisation plan of the APE Project is based, on the one hand, on the Euro-Mediterranean redefinition of the Apennine system, and on the other, on the development of a set of scenarios, pictures and strategies.

1) According to the first potential scenario, the Apennine system is organised as a large nature reserve, a broad green and mountainous “interstice” between two parallel strips, Adriatic and Tyrrhenian, of uninterrupted settlements and infrastructure. This scenario is based on the broad expanse of parks and protected areas scattered along the backbone, connected longitudinally by vast areas of high bio-permeability (woods, grazing land and primary grasslands) and the “greenways” of the past (the sheep tracks). However, the thrust towards this development trend comes, above all, from the economic, social and cultural conditions of mountain areas across Europe and is tied to the abandoning of farming, forestry and grazing, the depopulation of ancient towns and the collapse of small local communities. This is matched with the “modernisation” of agriculture, the spreading of urbanisation and the development of production and infrastructure in the plains. The difference between the inland landscapes of the Apennine range and those of the two lateral strips is further increased: in the former, wilderness areas are reformed, vast areas once used for farming and grazing re-naturalised, while in the latter traditional agricultural landscapes are further degraded, piedmont and plain ecosystems fragmented, areas undergoing urbanisation saturated and coastal landscapes disappear, sacrificed entirely by mass tourism. The inland Apennine landscape can therefore recover its natural value, but runs the risk of becoming merely the background to piedmont and plain landscapes, with surviving inland economies and cultures closed within archaic models of the past and an easy prey to colonising tourism that creates culturally foreign artificial islands in natural areas. The functional specialisation of mountain areas with respect to coastal areas increases the contrast between production and consumption models and lifestyles and development. However, this can also favour the recognition of the Apennine system in the European context and may find support in local and regional environmental policies, if the current trend, substantially in favour of protected areas, is ongoing and if projects for the national ecological network are implemented, at least in part. It might be possible to achieve results in tourism marketing, that is interested in enhancing the “diversity” of the mountain environment compared with everyday life and work. The re-launching of trails at a significant height above sea level, emblematically evoked by Sentiero Italia (Carnovalini et alii, 1995), the transhumance routes or the ancient ways of pilgrims and devotional pathways, the recovery and enhancement of the historical mesh of socio-economic, cultural and territorial relations are programmes that are very close to the idea of an ecological network.

2) The second potential scenario is tied to a historical image according to which the Apennine range is an obstacle to be crossed, tackled in the course of the centuries with the roads of Rome, the postal ways, the building of railway lines and later
of motorways. If, in the past, the building of major infrastructure in the Apennine system was based on plans not tied to local interests, in this scenario they may be backed by regional and provincial interests, in order to try and overcome the historical isolation of the South and the hinterland. And this, in order to link them more effectively to development areas both of the coast and of northern Italy and central Europe and to open up local economies to national and international markets. This is what has happened until yesterday in the Alpine regions, before the disastrous results caused by plummeting economic benefits and soaring environmental costs stirred up a local reaction against crossing traffic. This rationale could lead to the building of a significant road network across the entire Apennine system, both longitudinally (with the two main motorways, Tyrrhenian - including the bridge over the Strait of Messina – and Adriatic and the high-speed railway line), and transversally (the main connecting roads). The diversion of significant shares of long-haul heavy traffic on these large road networks could help re-organise local traffic, thus improving access to and links with inland areas. However, it is important point out that the choices relating to this scenario are hardly tied to local access or connection needs or with restoring the kind of territorial mobility that characterised extensive parts of the Apennine system in old times.

3) The third potential scenario is centred on local development. The “federalist” approach that, in Italy, is currently conditioning decision-making, claims and initiatives of most of these local systems which – as in the case of the Apennines – have suffered the effects of marginalisation in previous times, might lead to development projects marked by significant “localism”, even within the framework of the APE project. This prospect is certainly not foreign to the objectives of the same project, above all since it favours social participation and local creativity processes. However, the understandable jealous assertion of one’s own identity could lead to “closure” and isolation, the nostalgic upholding of one’s traditions or to “parochial” projects lacking a broader territorial approach. Localist thrusts are fuelled by the historical isolation of inland communities (especially in many areas of the South) and above all by the diversification and fragmentation of Apennine landscapes, which the previously mentioned weak unitary image is tied to. In an extremely localist perspective, even environmental policies may become closed (e.g. denying space for the integration of parks in their hinterlands); and the same applies to tourist policies, doomed to pursue fragmented local development, incapable of networking resources and of opening up new ways for sustainable development.

STRATEGIES FOR APENNINE PARK FOR EUROPE

The attempt to outline a strategy to implement the APE Project cannot but take into account the changes in the political and institutional setting that will affect, more or less significantly, the development of the environmental and territorial scenarios which the Project fits into. According to the Fifth Environmental Action Programme of the EU (European Commission, 2002) the institutional setting should be increasingly marked by:

- The integration of environmental policies and other development policies.
- Partnerships between different institutional and social players,
- Responsibility sharing.

It is in this development context that the aims of the APE Project should be fitted into, as defined in the Action Programme approved by the Interministerial Committee for Economic Planning (CIPE) in 2000:

a, nature conservation as an aim capable of combining the need for protection with the need for development and the growth of employment,

b, the conservation of the specificity of town systems through the protection, recovery and enhancement of building, cultural and religious heritage scattered throughout the territory,

c, sustainable tourism,

d, conservation and rural development,

e, promotion of quality produce in the agroindustrial sector,

f, conservation and development of homemade and agroindustrial produce,

g, the upgrading of the services network.

It is necessary to think of a strategy based on a national vision of the Apennine system by networking the many and different forms of local projects. It is at the national level, on the one hand, and at the local system level (municipalities, mountain communities, parks and local government associations) on the other, that it is possible to implement sound, interacting and converging projects. We can therefore identify the following three strategic axes:
A – Integration of APE in the Euro-Mediterranean context: tends to improve the recognition and role of the Apennine system as a bridge between central Europe and the Mediterranean and increase economic and cultural competitiveness. The main strategic guidelines concern the following:

A1 – the building of a new unitary image of the Apennine range, capable of summing up on a national scale, the wealth and diversity of local realities and promoting the formation of new shared identities, through actions in the field of knowledge, representation, social communication and territorial marketing;

A2 – the integration of protected areas, natural areas and resources of the Apennine range in the European Ecological Network, the Euro-Mediterranean system for nature conservation and more generally major international environmental infrastructure networks;

A3 – the improvement of the linkages of the Apennine system with the European mobility and transport networks, with special regard to the functions of harbours and “sea highways”, the upgrading of mixed systems, the reduction of the adverse impact of traffic and crossing infrastructure on environmental systems and the local recovery of existing infrastructure.

B – The networking of natural and cultural resources: tends to extend policies for the protection of natural, historical and cultural resources to the entire territory to achieve the integrated enhancement of the Apennine territory and the effective preservation of its identity. The key strategic guidelines concern the following:

B1 – the creation of an integrated system of parks, protected areas, areas of Community interest, wilderness areas and environmental linkage strips or corridors (paying special attention to the rediscovery, rehabilitation and protection of the surface hydrographical network), based on local co-operation, so as to set up organised “environmental infrastructure” for the entire territory, in order to increase the effectiveness of protection measures, improve public enjoyment of the natural heritage, enrich and diversify forms and motives and strengthen the role that the “economies of enjoyment” can play in local sustainable development;

B2 – the implementation of programmes coordinated at various levels (local, catchment area and national) for the protection of the land and waters, that ensure a gradual and controlled process in abandoned areas that will undergo re-naturalisation, adequate maintenance of territories where for various reasons it is necessary to maintain the presence of man, effective prevention of seismic, hydrogeological and flood risks, integrated management of water cycles, a reduction in the waste of land and water resources and pollution and rational and cheaper management of waste water and solid wastes;

B3 – putting in place programmes to rehabilitate rural areas (even in relation to their ecological role), with structured actions for the rehabilitation of woods, for support to traditional activities, where needed for hydrogeological stabilisation and town preservation, for the improvement of existing essential infrastructure and services for farmer communities and for the promotion of agro-industrial produce or woodworking techniques;

B4 – the implementation of plans and programmes for the conservation, management and enhancement of the landscape, historical matrixes and architectural and town heritage, in accordance with the directive of the European Landscape Convention (Council of Europe, 2000) and on the basis of concerted initiatives of the Ministry of Environmental and Cultural Heritage, the Regions and local government;

B5 – the creation of networks for the enjoyment of towns, nature and culture, based on the recovery of historical roads and pathways (trails, religious pathways, sheep tracks, etc.) and related facilities, the organisation and signposting of theme itineraries of varying nature (including wine and food-tasting itineraries) and the production of informative, documentation and multimedia communication aids aimed at attracting and guiding visitors.

C – The strengthening of local systems: tends to stimulate initiative and self-organisation capabilities of local communities, favour association, co-operation and integration and improve their livelihood and sustainable development. The main strategic guidelines are the following:

C1 – the strengthening of local milieus, with measures to promote and support the enhancement of the natural and cultural heritage and local standards of living and work, the development of entrepreneurship and social resources, the strengthening of productions and the recovery of traditional knowledge, professions and skills;

C2 – the strengthening and upgrading of services ensuring the practicability of the territory and the restoring of acceptable conditions of habitability in old towns (“city of villages” or “networked villages”), even through investment aimed at
favouring the use of IT networks that ensure easy access to information and services;

C3 – the re-organisation and strengthening of local mobility and transport systems to improve the access to services and civil life opportunities of the population, enhance access to parks and the main natural and cultural resources, shift mobility flows, to the greatest possible extent, from private to public means (by revamping, where possible, railway transport, especially for the haulage of goods, not only with “green trains” to access parks);

C4 - the promotion of sustainable tourism and social (teaching, educational, scientific and cultural) enjoyment in forms suited to the specificity of the different environmental realities, with measures and actions to improve “total quality” of tourist offerings, organise and manage co-ordinated forms of offering and promotion, train staff for “interpretation” of and communication on places and resources and develop a “culture of hospitality” rooted in local traditions.

Photo 5 – Natural and cultural landscape in Pollino National Park (Basilicata).

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A. Coordination Unit: R. Gambino (Politecnico di Torino), A. Clementi (Università di Chieti-Pescara), G. Dematteis (Politecnico di Torino), with F. Renzi (Legambiente).

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B1. Information systems and knowledge bases: F. Thomasset, with S. Bongiovanni.
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B3. Landscape systems: P. Castelnovi (Politecnico di Torino).
B5. Local systems and groups: G. Dematteis, with F. Governa (Politecnico di Torino).
B10. Interpretation and summaries: A. Clementi.

B14. Data processing: L. Fabbri, F. Thomasset (Studio Associato), M.G. De Michele, A. Cittadino (LARTU; Politecnico di Torino).

C. Work Groups involved in Area-Specific Studies:

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- Garfagnana and the Tuscan-Emilian Apennines: M. Sargolini (Università di Camerino).
- The “Tiburtino” axis: L. Caravaggi, with C. Imbroglini (Università La Sapienza di Roma).
- The Collifiorito area: L. Caravaggi, with C. Imbroglini (Università La Sapienza di Roma).

C2. Romagna, Umbria, Marche, Abruzzo:
- The Romagna crest: T. Chiauzzi.
- Monti Sibillini: R. Angeli (Università di Camerino).
- Monti della Laga and Gran Sasso: R. D’Onofrio (Università di Camerino).

C3. Abruzzo, Puglia, Molise:
- R. Mascarucci (Università di Chieti-Pescara).
- Majella: R. Mascarucci (Università di Chieti-Pescara).
- Alto Molise: A. Busca (Università di Chieti-Pescara), with O. Aristone, B.D. Rico.
- Gargano: W. Fabietti, with P. Rovigatti (Università di Chieti-Pescara).

C4. The Southern Apennines:
- B. Cillo (Università di Reggio Calabria).
- Alta Irpinia: B. Cillo, with A. Maglio (Università di Reggio Calabria).
- The Lagonegro area: B. Cillo, with T.M. Sarli (Università di Reggio Calabria).
- Aspromonte: M. Venditelli (Università di Reggio Calabria) with P. Curzo Pulella.


The study involved continuous interchanges with the Ministry of the Environment’s Nature Conservation Service (through the Director, A. Cosentino, and his colleagues), as well as with Federparchi, the National Federation of Nature Reserves and Parks (E. Valbonesi, G. Rossi), UPI, the Union of Italian Provinces (Forte Clò, Baldini) and the environmental watchdog group Legambiente (F. Renzi), who were responsible for conducting the parallel investigations carried out as part of the APE Project. The proposals and information presented in this publication owe much to the discussions and contributions that these interchanges entailed, though the statements made herein do not necessarily reflect the views of the organizations involved. The study also benefited from close contacts with L. Boitani (Università di Roma) and A. Calafati (Università di Ancona), who carried out related studies on behalf of the Ministry.
Figure 5 – Nature 2000 Areas (SCIs and SPAs) in Italy
Figure 6 – Biopermeability areas in Italy (implemented by PLANECO Project 1998)
Figure 7 – Protected Areas and Environmental Cohesion Units in Apennines
**Table 1 - Natural Parks (National and Regional) in European mountain systems (CED-PPN,1997)**

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scandinavian Alps</td>
<td>18,525,077</td>
<td>22</td>
<td>1,739,805</td>
<td>9%</td>
<td>79,082</td>
</tr>
<tr>
<td>Pennine Chain</td>
<td>1,209,588</td>
<td>3</td>
<td>419,600</td>
<td>35%</td>
<td>139,867</td>
</tr>
<tr>
<td>Cantabrian M.</td>
<td>4,215,232</td>
<td>10</td>
<td>291,868</td>
<td>7%</td>
<td>29,187</td>
</tr>
<tr>
<td>Pyrenees</td>
<td>3,127,440</td>
<td>10</td>
<td>210,816</td>
<td>7%</td>
<td>21,082</td>
</tr>
<tr>
<td>Iberian System</td>
<td>5,751,426</td>
<td>8</td>
<td>176,498</td>
<td>3%</td>
<td>22,062</td>
</tr>
<tr>
<td>Sierra Morena</td>
<td>1,659,413</td>
<td>5</td>
<td>525,254</td>
<td>32%</td>
<td>105,051</td>
</tr>
<tr>
<td>Baltic M.</td>
<td>2,394,665</td>
<td>13</td>
<td>773,844</td>
<td>32%</td>
<td>59,526</td>
</tr>
<tr>
<td>Massiccio Centrale</td>
<td>4,108,326</td>
<td>4</td>
<td>801,057</td>
<td>19%</td>
<td>200,264</td>
</tr>
<tr>
<td>Alps</td>
<td>18,279,850</td>
<td>62</td>
<td>1,735,108</td>
<td>10%</td>
<td>29,953</td>
</tr>
<tr>
<td>Apennines</td>
<td>4,818,459</td>
<td>26</td>
<td>1,247,132</td>
<td>26%</td>
<td>47,967</td>
</tr>
<tr>
<td>Giura</td>
<td>1,000,049</td>
<td>1</td>
<td>62,088</td>
<td>6%</td>
<td>62,088</td>
</tr>
<tr>
<td>Selva Nera</td>
<td>930,969</td>
<td>1</td>
<td>85,710</td>
<td>9%</td>
<td>85,710</td>
</tr>
<tr>
<td>Bohemian Forest</td>
<td>2,681,150</td>
<td>15</td>
<td>1,343,773</td>
<td>50%</td>
<td>89,585</td>
</tr>
<tr>
<td>Carpathians M.</td>
<td>7,293,138</td>
<td>14</td>
<td>343,938</td>
<td>5%</td>
<td>24,567</td>
</tr>
<tr>
<td>Transylvania Alps</td>
<td>2,472,104</td>
<td>2</td>
<td>114,500</td>
<td>5%</td>
<td>57,250</td>
</tr>
<tr>
<td>Balkans</td>
<td>1,886,544</td>
<td>3</td>
<td>37,206</td>
<td>2%</td>
<td>12,402</td>
</tr>
<tr>
<td>Rodope</td>
<td>2,722,095</td>
<td>3</td>
<td>54,050</td>
<td>2%</td>
<td>18,017</td>
</tr>
<tr>
<td>Albania Alps</td>
<td>3,683,345</td>
<td>8</td>
<td>151,508</td>
<td>4%</td>
<td>18,939</td>
</tr>
<tr>
<td>Dinaric Alps.</td>
<td>4,147,065</td>
<td>11</td>
<td>159,071</td>
<td>4%</td>
<td>14,461</td>
</tr>
<tr>
<td>Pinto</td>
<td>1,652,677</td>
<td>6</td>
<td>37,062</td>
<td>2%</td>
<td>6,177</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>92,558,612</td>
<td>246</td>
<td>10,309,891</td>
<td>11%</td>
<td>41,910</td>
</tr>
<tr>
<td><strong>Other systems</strong></td>
<td>92,558,612</td>
<td>246</td>
<td>10,309,891</td>
<td>11%</td>
<td>41,910</td>
</tr>
</tbody>
</table>

**Table 2 - Protected areas (AP*), Site of Community Importance (SCIs**) and Special Protection Areas (SPAs**) in Europe, in Italy and in Apennines system (APE)**

<table>
<thead>
<tr>
<th>UE</th>
<th>n.</th>
<th>Area (ha)</th>
<th>Italy***</th>
<th>n.</th>
<th>Area (ha)</th>
<th>APE</th>
<th>n.</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>23,596</td>
<td>56,919,122</td>
<td>11,519</td>
<td>41,303,700</td>
<td>2,663</td>
<td>17,320,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>962</td>
<td>3,320,210</td>
<td>2,328</td>
<td>4,179,096</td>
<td>337</td>
<td>1,706,913</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>168</td>
<td>1,513,241</td>
<td>864</td>
<td>1,414,228</td>
<td>73</td>
<td>663,791</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*National and Regional Parks, Reserves, Protected Landscape and Natural Monuments (CED-PPN 1999). **EU Nature 2000 Program

**Table 3 - Environmental Cohesion Units (PLANECO, 2000 - The numbers are relative to Figure 7)**

<table>
<thead>
<tr>
<th>N.</th>
<th>Name</th>
<th>Area (ha)</th>
<th>Involved protected areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Appennino Ligure</td>
<td>513,982</td>
<td>Parco Regionale del Magra, Area protetta del Bric-Tana, Monti di Portofino, Monte Antola</td>
</tr>
<tr>
<td>7</td>
<td>Appennino Emiliano-Toscano</td>
<td>667,14</td>
<td>Parco Regionale delle Alpi Apuane, Parco Regionale dell’Alto Appennino Reggiano</td>
</tr>
<tr>
<td>10</td>
<td>Appennino Campano</td>
<td>464,265</td>
<td>Parco dei Monti Picentini</td>
</tr>
<tr>
<td>12</td>
<td>Appennino meridionale Lucano – Calabrese</td>
<td>1,018,396</td>
<td>Parco nazionale del Cilento-Vallo di Diano, Parco nazionale del Pollino</td>
</tr>
<tr>
<td>13</td>
<td>Appennino Calabrese Or.</td>
<td>432,401</td>
<td>Parco nazionale della Calabria</td>
</tr>
<tr>
<td>14</td>
<td>Appennino Calabrese Merid.</td>
<td>304,619</td>
<td>Parco nazionale dell’Aspromonte</td>
</tr>
<tr>
<td>15</td>
<td>Sicilia</td>
<td>499,402</td>
<td>Parco Regionale dell’Etna, Parco Regionale delle Madonie, Parco regionale dei Nebrodi</td>
</tr>
</tbody>
</table>