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THE GREEN INFRASTRUCTURE OF THE APENNINES: TOWARDS A PILOT PROJECT

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1. The Apennines are sentinels of change. The dorsal of the Apennines can be considered a true green infrastructure that crosses Italy, able to link natural, rural, agricultural, forest and urban areas, green and blue areas, even if they suffer from the fact of being considered disadvantaged and marginalized territories. This makes it even more important to give value to the Apennine heritage through good practices for the promotion of information and environmental governance aiming not only to protect the environment of the Apennines, but also to the achievement of social, working and economic benefits. As stated by The Strategic Research Agenda “Mountains for Europe’s Future”: Mountains actively provide ecosystem services for all Europeans, even those living in distant lowland regions. A sixth of European citizens live in the mountains, and the quality of life of every European depends on the goods and services that mountains provide. We need to modify our understanding of mountains. They can offer unique solutions and insights into many of the most pressing challenges currently faced by Europe, for example, how to ensure smart transport, clean energy or sustainable tourism. Mountain regions must be viewed as places where new technologies can be tested and deployed, and as test-beds for innovative solutions to social issues. The inclusion of call topics on mountains in the 2018-2020 calls of Horizon 2020 would help to ensure that this new understanding of the potential of mountains is fully in line with the major objectives of the Europe 2020 strategy for smart, sustainable and inclusive growth, with the EU Strategy for the Alpine Region and with the priorities of the 7th Environment Action Programme. The article doesn’t consider the Apennines as marginal or disadvantaged territories, but as an original green infrastructure, which may represent an environmental, economic and social sustainable development model of great opportunities. Considering the Apennines as a green infrastructure means improving the connectivity between different geographical areas. Not only natural, agricultural, rural and also urban and suburban area counteract the environmental fragmentation,

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but also the administrative districts promoting the exchange of ideas and experiences and creating relationships capable of generating wealth for the territories. Green infrastructures are created in order to preserve a nature that cannot survive in “park islands” scattered along the ridge, and to keep alive the communities with rarefied population in the Apennine area, often considered peripheral and marginal compared to the economically stronger areas. Connectivity is a strength that leads to an economic role, to import and export ideas and experiences in a variety of activities: from tourism to local products, from crafts to industry.

In addition to giving value to a territory that is considered to be marginal, this green infrastructure: 1) optimizes the permeability of the landscape and the multifunctional areas with land uses which are compatible with the development of healthy and diverse ecosystems from a biological point of view (areas where there is agriculture, forestry, entertainment industry and conservation of ecosystems coexist in the same space);

2) reduces the digital divide for combinations of mutual benefit (so-called “win-win”), producing multiple benefits not only for land users (farmers, forest agronomists, tour operators, citizens, etc.) but also to society as a whole, thanks to the provision of high value ecosystem services such as water purification or improvement of soil quality and the creation of “green lungs” for the population.

Considering the Apennines as a green infrastructure means creating an integrated social, economic, touristic and environmental system, in other words:

1) an integrated approach to the management of the Apennine territory that requires above all a strategic informative planning, which enables spatial interactions between different forms of land use, to accurately trigger on a wide geographical area (Northern, Central, Southern);

2) an informative approach that can promote meetings between different sectors, through the creation of a permanent network of involved partners who can together identify the priorities of the governance and the use of the local territory in a transparent, integrated and cooperative way, providing the local communities with a more active role in protection and environmental development of the Apennines. After all the Apennines can be considered a true hybrid territory which is different from the urban and the rural traditions and so characterized by a functional and aesthetic flexibility and mutability as to appear to be work in progress, requiring a smart knowledge to govern, but essentially which needs a culture of government to build new networks of relationships, capable of generating cooperation and participation, and above all able to address the inconsistency between the administrative limits and real processes, felt both by administrators and the local communities (cfr. Ciaschi, 2016).

According to the ISTAT, the decline of the operating space during the years 1961 to 2010 was really impressive. Almost 80% of the values registered in 1961, with a loss

of more than 3.800 km² of 5.400 that sum up the total size of the entire region. Important reductions are also registered in Friuli Venezia Giulia (- 54.9%), in Calabria (- 49.8%) and in Valle d'Aosta, Lazio and Campania, all these regions exceed 40% of farmland reduction in the period of fifty years. On the opposite side, the area that has maintained the highest corporate coverage is that of the two autonomous provinces of Trento and Bolzano, where the reduction of the Total Corporate Area (SAT) is respectively 19.5% (Trento) and 21.7% (Bolzano).

Regardless of the institutional dimension of the Regions, the geography of the change of the Total Corporate Surface marks strongly the entire Alps including the Alpine foothills (with the exceptions of Trento and South Tyrolean areas) and the north-western Apennines where dramatic dynamics that characterize the territory of Liguria are projected with similar intensity in the contiguous areas of Tuscany, Emilia Romagna and areas beyond the river Pò in Lombardy.

All in all, the loss of agricultural government of the territory is a little more emphasized in mountainous areas (where the decrease amounts to 36.5%) compared to the territory marked by a more robust urban framework presence (the “centers” where the reduction is of 34.5%).

Of most importance in this reduction of agricultural presence in the most urban areas of the country are the processes of erosion determined by urban growth, particularly remarkable in the major metropolitan areas of the Centre-South with the extreme cases of Lazio and Campania, where the reduction of the Total Corporate Surface in mountain areas is much smaller than that recorded in the rest of the region.

As a result of these changes of so extensive flow, the balance between environmental dynamics, spreading attention to the care of the territory and safety of the settlements, has profoundly changed with significant outcomes in terms of growth of the fragility of the soil- topsoil-systems and of the environmental hazard.

The action of the Protected Areas, that have recently also experienced a worrying subtraction of skills (and roles) could not by itself address the impressive reduction in areas managed by farms (urbanization, abandonment). In front of the processes of abandonment, the rising environmental awareness has gradually shifted the focus of experts and populations from the choice of an increasingly artificial state of the territory and the water circuit, to a search of new balances that incorporate a higher level of naturalness of the network and river environments.

In this framework that reflects the environmental, social and economic challenges that affect the Apennines, we should add the new elements introduced by law n. 56 of April 7, 2014 to the system of local governments, which have affected the metropolitan cities, provinces and municipalities. A complex reorganization of the peripheral administrations, which has led to “large area bodies” or intermediate local body between municipalities and regions at the planning and land management level. In this context the distinction between ordinary provinces and mountainous border

provinces has also been introduced, in view of a growing appreciation of its peculiarities from a socio-economic, legal and administrative point of view. However, in the Italian mountain territory all of this opens a legislative and geographical debate that involves not only the articles of the Constitution and the European policies to legally formalize the concept of mountain specificities (for example the difference between entirely mountainous territory and mainly mountainous one), but also the redefinition of administrative boundaries of the new Vast Areas, by considering the geographical and orographic shape and by outlining portions of the territory that are entirely mountainous (Rapporto Ambientale, 2014-2020).

While considering the reference stakeholders and the pilot Apennine situations, the project must also consider these legislative changes and will try to raise awareness among the population on the new administrative cutout not only to allow the possibility of putting in place a coherent and effective design for the Italian Regions and the mountain areas, but especially for the “re-appropriation” of a full citizenship rights for the population inhabiting the Apennine areas, in terms of quality and efficiency of services which must be guaranteed by central and local public administrations; a necessary condition to ensure the dwelt of the population and returning the territory “under the control” of local communities.

2. Proposals for research activities. The Apennines, which extension varies from a minimum of 30 km to a maximum of 250 km, divide the surface of the Country into two sides: the Tyrrhenian and the Adriatic, different from each other in many aspects with about 2.000 mountain Municipalities and almost 11 million inhabitants distributed in an area of nine million ha. From Liguria to Sicily, for a length of 1.500 km, it is divided into three main parts according to latitude: northern, central and southern Apennines. The focus is to create conditions for achieving effective management of the Apennines as green infrastructure, through consultation with administrations, scientific communities, local communities, associations and economic operators of routes that allow to share the environment and its biodiversity, old villages and their traditions, typical products, renewable energy, rural tourism and the beauty of the landscape, with the need to improve the accessibility, sustainability and usability of places along the Apennines, by now a priority of the local communities, as well as of administrators.

In most European mountain regions, outside urban areas, there is a lack of efficient and environmentally sustainable transport – including local roads and railways – of effective Information and Communication Technology (ICT) and of networks (e.g. limited broadband). The complex topography of mountain areas presents particular

challenges in terms of transport access, which is essential for all economic activities. Similarly, there has been a lag in the installation of ICT infrastructures, which are essential for connecting mountains with the rest of Europe and the world. Addressing inadequate transportation and ICT infrastructure is vital not only for many aspects of economic development, but also for institutional development and capacity, governance and the delivery of health, education and other services (Mountains for Europe's Future, 2016, p. 12).

A key issue is the sustainable improvement of accessibility of the Apennine territory, with reference to the integration of the various transport systems for people and goods, so that, thanks to the web and mobile information, they are interconnected with each other. A sustainable mobility is a real driving force for tourism, hospitality, crafts, historical heritage and small Italian villages, nature and parks. Therefore, it represents also an intelligent growth opportunity, also becoming a concrete way to prevent the abandonment of territories and contrast the hydrogeological instability in the country, thanks to the maintenance of networks and railways. Just behind both the road and railway networks there are also interesting products that can be recovered and tied to promotion and hospitality activities. It is the case of rail toll stations and little stations now closed of which the State Railways promote the reuse and the road inspector's houses which recently, through an agreement between the National Autonomous Roads Corporation (ANAS), the Ministry for Infrastructures and Transport (MIT) and the Ministry of Cultural Heritage and Activities and Tourism (MiBACT), will be allocated to tourism and cultural uses. Several private operators are oriented to these activities with the provision of services, with integrated solutions for reception, bike transport, assistance and bike mechanic's garages, with the sale of excellence products of the territory, with tourist guides. Small local economies linked to the very interesting soft mobility are therefore springing up.

The Ministry for Heritage and cultural activities itself has also decided to issue a legislation to announce the year 2016 as the "Year of the Routes of Italy" to enhance the value of pedestrian hiking trails or otherwise usable with other forms of soft sustainable mobility, of national and regional levels, which represent a component of the cultural and tourist offer of the Country. The same legislation considers the census of existing routes and paths, of those in the project, to then set up an "Atlas of Routes of Italy" in collaboration with regions, local authorities, municipalities, third sector, universities and operators in the cultural and tourism sectors.

These are very important objectives at the center of a legislation that is currently being debated in the Italian Parliament to establish the "Regulations for the creation of a network of routes for soft mobility and for the conversion of disused railway lines". There are numerous local groups of volunteers that are committed in the Apennines to the reopening of dismissed or even abandoned lines full of tourist services. These volunteers take also care of railway museums, historical rolling stock

that keep alive the memory and are grouped in Italian Tourist Railways association and in the Federation of Tourist and Museum Railways. The aim is to permit the improvement of the information concerning the public transport through the integration (also in terms of price list) and the intermodality of the networks, the enhancement of soft mobility routes (foot, bicycle, horseback, slow railways), the integration of the road mobility infrastructure with slow food route and the slow travel through a dedicated signage addressing the motor vehicles in order to reduce speed, and the implementation of the fast connection to the computer network and the reduction of the digital divide, using QR codes for signage, inclusion of Wi-Fi points and informative institutionalized APPs. For the success of this operation, it is also crucial to grasp the socio-economic dynamics signals that are present in different forms within the communities of the Apennines, which are the reference stakeholders. In this sense, the multifunctional role of farms and the commitment of young entrepreneurs in the local development of rural tourism and in the process of promotion of local products is of major importance.

3. “People need Apennines, and Apennines need people.” (Mountains for Europe’s Future, 2016, p. 10). The Apennines offer in this regard important favorable conditions, proposing a much stronger intensity of rural hospitality with a density of 6.7 agritourism businesses per 10.000 inhabitants against the allocation of 1.8 businesses per 10.000 inhabitants of the remaining national territory. The regional specificities are obviously very marked in Veneto, Emilia Romagna, Sardinia, Tuscany, Umbria and Marche. The difference between the regions of the Centre-North and those in the South is very marked (Baldini e Lupatelli, 2015).

A pilot project of the Apennines has the aim to investigate the presence of new social subjects that can meet the demands of territorial maintenance and social cooperation: “sustainable mountain development is therefore a fundamental response to environmental pressures and societal challenges. There is an urgent need for innovative approaches supported by new and integrated policies that work across borders and between upland and lowland regions, and involve all concerned stakeholders. This implies an urgent need for increased research efforts and concerted policy solutions” (ibidem, p. 13).

New subjects for new policies for territorial cohesion and “place-based” development are needed to implement and grow, from the multifunctional farms (and from the environmental management contracts, with which commit them to the care of canals, paths, terracing) to artisan industries; from Parks to the land Reclamation Consortia; from Associations to Social Cooperation; from volunteering to Civil Service where you need to go to for effective responses to the loss of traditional ways of corporate care and maintenance of the territory, building conditions for original and vibrant governance, adaptable to the local and partakers of the national network. “Land

abandonment is one symptom of a long-term negative trend in socio-economic conditions that characterises the rural parts of most mountain regions in Europe and in Italy. Since mid-20th century, advances in technology and globalisation have dramatically reduced the need for labour in agricultural production. There has also been a strong decline in birth rates in rural mountain regions. Together with an increasing out-migration due to reduced economic opportunities, decreasing natural population balances have led to shrinking and ageing populations in many areas. These trends exacerbate the challenges for economic development and service provision that these regions face. They also represent challenges “for landscape management and tourism, as the patchwork of forests and pastures that characterize agricultural landscapes are both important for biodiversity and attractive to tourists”(Mountains for Europe’s Future, 2016, p. 11).

APPs and ICT infrastructures allow the spread of skills and information, improving the territory in terms of sustainable mobility and rural tourism, and creating a database of what has been done and what is still to be done in the sustainable mobility of the Apennines, enhancing it, presenting it to the public in a simple and immediate way and ensuring an appropriate level of quality for both sustainable mobility and rural tourism. These Apps have, in fact, the goal of promoting the awareness that the development system can produce a positive change and be an effective means of intervention to facilitate the exchange of knowledge and communicate the importance of the Apennines as a green infrastructure.

The objectives are:

- establish consultation procedures between governments, scientific communities, local communities, associations and even economic operators in order to pursue a grid configuration between actors, involving locals both in the knowledge/recognition of values phase and in the design and implementation of those interventions;
- implement innovative environmental pathways in the Apennine areas (small cities of art, eco-museums, museums of local traditions, agricultural and artisan products, environmental and picturesque trails, folk festivals and fairs) aimed at sustainable and rural tourism mobility;
- improve practices and expertise in understanding the territorial implications of some phenomena in the Apennines;
- provide effective indicators and data to be disseminated through the APP that can allow the stakeholders to have a continued active participation in governance with an appropriate feedback.

Enhancing the Apennines as a green infrastructure means to achieve a greater awareness between the stakeholders on how to make a system and a network that can have a positive impact on the protection and conservation of the environment, on energy consumption, economy, tourism and social cohesion. An awareness that can be a model to be exported and reproduced in other territories.

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