

## **REGENERATION AS A DEVELOPMENT PROCESS FOR SUSTAINABLE DEVELOPMENT. CROSS COUNTRIES ANALYSIS: ITALY, BELGIUM AND SPAIN.**

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**Abstract.** *The aim of the research is to analyse the state-of-the-art of Italian railway heritage, in particular the mismanaged stations, disused railway lines, the National action-plan of railway reconversion, the role of the Public Administration in the requalification and regeneration processes and the impact that these processes have on territories in terms of social and environmental sustainability. After an analysis of the literature on the processes of territorial change, such as regeneration and requalification (Borri, 1995; Evans & Shaw, 2004), the research focuses on the analysis of the causes of dismiss and abandonment of the stations and railways and on a cross-country analysis of Italy, Belgium and Spain. The research methodology applied to the case study, mainly qualitative, is based on the document analysis (Bowen, 2009), with the aim of "registering" the unused Italian, Belgian and Spanish railway assets, analysing reuse methodologies and the stakeholder engaged.*

**Keywords:** *Sustainability; regeneration; requalification; railways sector; greenways; cross countries analysis.*

### **Introduction**

The social changes, urbanization (Gottmann, 1961), migration, economic and technological changes that occurred at the end of the XIX century have significantly changed the territorial infrastructural system. The opening of new roads and railways that provide greater convenience in terms of travel time has often led to the closure of pre-existing railway lines, which have become marginal or technologically obsolescent. Furthermore, the scarce number of users, the equipment made available by technological innovation and the national political choices regarding infrastructures, have led in some cases to the closure of stations and disuse railways, in consideration of management costs that are no longer sustainable or necessary. It is clear that public administration needs to set itself goals for rebirth of the dismissed railway heritage with

a view to sustainability, as requested by the international strategies and regional dynamics on the sustainable development of territorial and urban areas (Agenda, 2030).

The objective of the research is to analyse the impact that regeneration processes have on the territories, by studying how public policies can guide and support sustainable development processes that can achieve positive results in social and environmental terms. After an analysis of the literature on territorially changing processes, such as regeneration and retraining (Borri, 1995; Evans & Shaw, 2004), the authors focused their research on the objectives of these processes, on the stakeholders and on the role held by the Public Administration (paragraph 1). The paper is enriched by a cross countries analysis between Italy, Belgium and Spain (paragraphs 3 and 4) on the reconversion of disused railway networks and an ad hoc interview with the Head of the "Green Station Legambiente" project of Legambiente, a non-profit association that has collaborated with "Ferrovie dello Stato" (Italian railways public company) on projects of regeneration of the dismissed stations. The research methodology (paragraph 2) applied to the case study, mainly qualitative, is based on the document analysis (Bowen, 2009), with the aim of "registering" the Italian, Belgian and Spanish railway heritage not being used, and analysing the methods of reuse, the subjects involved and the reasons for the activation of networks and railway stations.

### **Literature review**

The main changing processes, which see the Public Administration as the principal operator in their implementation, are requalification and regeneration, two of the four processes of change that also include gentrification (Florida, 2002, 2005; Glass, 1964) and self-made urbanism (Litardi, Pastore & Trimarchi, 2016).

Requalification (Borri, 1995) is defined as the transformation of a place (residential, industrial or open space) that shows symptoms of environmental (physical), social and/or economic decline. Retraining is the process that sees "the infusion of a new vitality for communities, industries and places in decline that bring sustainable and long-term improvements in local quality of life, including economic, social and environmental" (Evans & Shaw, 2004).

Regeneration is the rehabilitation of poor or impoverished spaces by the renovation or reconstruction of large-scale housing and public works; when regeneration is considered in the context of "urban", it involves the rebirth or renewal of these. Regeneration is mainly concerned with cities and suburbs facing periods of decline (Litardi et al., 2016).

Requalification is a process that sees a physical restructuring of places and spaces that does not alter the primary use of the space subject to change; the goal of regeneration is to rethink a new use for the place under examination through interventions of a cultural, social, economic and environmental nature, aimed at increasing the quality of life, by respecting the principles of sustainability (Brundtland, 1987) and stakeholder engagement (Jeffrey, 2009).

**Table 1. Changing process where Public Administration is the principal operator.**  
 (Source: elaboration from Litardi & Pastore, 2017)

Process	Objects	Pioneer	Stakeholder	Aim/outcome	Results
Requalification	Public space, public building and public service	Public Administration (PA)	Residents and PA	Decoration and renovation	Increasing the value of properties; increasing green areas and public transport services
Regeneration	Private building and public space	Private company, non-profit organization and Public Administration (PA)	Residents, PA, private company, SME, associations	Community aggregation and engagement, Decoration and renovation	Increasing the value of properties; new business; new social and cultural activities; social participation; sense of belonging

Requalification and regeneration could be processes that are not necessarily dependent on each other (Table 1), but when the “pioneer”, i.e. the actor who implements the process of change, is the Public Administration, an attempt is made to implement both processes, for example: “Macro Testaccio” in Rome, a former redevelopment slaughterhouse converted into a museum of contemporary art, the “Greenways” (Little, 1990) in Europe (see paragraph 3) and in New York the “High Line”, a road that crosses the Chelsea district, re-qualified and converted into a real “overhead” park. In particular, the greenways, the object of study of the present research, are defined “as linear open spaces, established along a natural corridor, such as the course of a river, a valley or a ridge line, or long sections of pertinence of infrastructures of transport, such as disused and reconverted railways to recreational uses, or canals and scenic roads” (Little, 1990). In Little’s definition, greenways are also the pedestrian or cycle paths immersed in natural settings, the open spaces that connect parks, reserves, and cultural and historical sites, with populated areas.

### Research methodology

The assumption of the research starts from a theoretical analysis elaborated on two of the four principal processes (Borri, 1985; Evans and Shaw, 2004) of urban change: regeneration and requalification, and the pioneers who allowed these processes (paragraph 1). However, the aim of the research is to analyse what kind of sustainable development model has been created in the process of changing greenways at the European level.

The research is enriched by interviews (Kvale, 1996; McNamara, 1999) that the authors have had with key stakeholders of the Italian experience: the General Manager of *Legambiente* Rossella Muroni and the project manager of Green Station *Legambiente* Lorenzo Barucca (paragraph 3 and 4).

Italy, Spain and Belgium are the countries of interest for the cross-country analysis (paragraph 4). The factors for choosing these countries are the quantity of disused railway lines, the modalities of conversion and the causes that led to this divestment (paragraph 3).

The main causes and effects of the disused railways and railways station, are:

- European regulations, Directive n. 34/2012 / EU, establishing a single European railway area through the strengthening of competition rules, such as, for example, the separation between the railway transport service and the ownership of infrastructure through the establishment of an open railway market, eliminating administrative and technical obstacles and ensuring a level playing field with other modes of transport;
- The increase in new technologies applied to the railway sector has made it possible to regulate the movement of trains and manage all the technical operations connected by a single operating post that oversees scheduled sections and controls. These remote operations without the need for the presence of personnel on site, has caused an increase in the presence of railway facilities (stations and toll booths) but depleted the territory due to the lowering of labour supply;
- The urbanization of cities, relative impoverishment of rural areas and depopulation.

Cross countries analysis is enriched by a qualitative research methodology such as document analysis for the review and evaluation of electronic documents (Bowen, 2009). During the research, the information was systematized, summarized and elaborated in order to present a map of the use and interpretation of unprecedented territorial initiatives and their critical reading, on the basis of the main theories and models considered. In particular, the authors organized the parameters into seven specific categories through the information analysed in the documents (Labuschagne, 2003), which helped to have a mapping of the practices, their similarities and distinctions: a) country, b) year, c) object disused, d) pioneers, e) results, f) processes of change, g) type of partnership or concession. This scheme is useful for replicating the study in other case studies and comparing the results.

### **Cross countries analysis: Italy, Belgium and Spain**

#### ***Italian scenario***

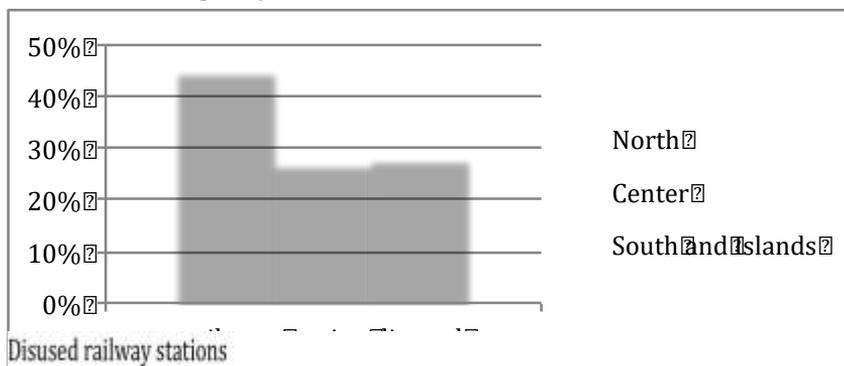
Ferrovie dello Stato Italiane (FS), like other European railway companies, has in recent years engaged in a deep effort to reorganize and redevelop unused real estate assets. These are disused railway lines and stations which now run the risk being vandalised because, due to the technological evolution underway, they no longer need the physical presence of railway personnel, but are remotely managed through IT devices. Currently, there are about 1,700 (see Figure 1) stations of the Italian Railway Network, for the most part in good condition and close to towns, which occupy a total area covered including the station buildings and apartments of about 420,000 square metres, and that were recorded in the FS budget of 1996 with a global value exceeding €200 billion.

The FS Group has started a programme of concessions through free loan contracts for associations and municipalities to launch social projects that have positive effects on the territory and the quality of the services offered at the railways station. Of these, about 345 stations, corresponding to an area of over 63,683 square metres, have been assigned (2014 FS data). Furthermore, a new redevelopment project has been launched for the social and environmental reuse of space thanks to the signing of a "Memoranda of

Understanding” with the Tuscany Region, Legambiente, AITR (Italian Association of Responsible Tourism), CSVnet (Service Centres for Volunteering) and Legacoop Sociali (social cooperative).

Also part of the FS Heritage are 3,000 km of disused railway lines, of which 325 km were destined for greenways: cycle paths and green paths accessible to all, reserved for soft mobility. In particular, for small stations with very low attendance, with no possibility of commercial development, RFI (Italian Railway Network) has activated to stipulate free loan contracts (as defined in Article 1803 of the Civil Code) with Local Authorities or non-profit associations, thus responding to the growing demand for spaces to be dedicated to welfare activities.

These contracts provide for the sale of station premises no longer functional for railway operation to be used for social, cultural, and assistance activities (including, for example, art exhibitions, tourist accommodation, toy libraries, neighbourhood meetings, civil protection, traffic wardens), and assistance to the disadvantaged, (pro loco, etc.). In return it is required that the institution or association takes care of the small maintenance and cleaning of the building. In this way the community is enriched by services structures and guarantees an human presence in the station, with positive effects also in terms of quality and decorum of the structure.



**Figure 1. Percentage of disused railways stations on Italian territory**

In order to guarantee to the users of the stations an ever better use of the spaces and services and a high architectural and functional quality of the buildings RFI has started several redevelopment programmes at approximately 2,150 stations. In particular, for the valorisation of 101 stations in the south of Italy, significant in terms of location, size, architectural merit and tourist attraction, a project called the “Evolved Program for the Management of Station Areas Located in Southern Italy” (Pegasus Project) is being created.

In 2011 Legambiente signed a Memorandum of Understanding (MoU) with Rete Ferroviaria Italiana (RFI) and FS to promote a policy of support and planning for social initiatives in the railway areas; to enhance central stations as a physical space to offer citizens services and opportunities for meetings; propose new models of development of their territory to make it more sustainable, healthy and attractive; to combat the phenomena of social exclusion of the weakest subjects and to promote the processes of social inclusion. “The purpose of the Memorandum of Understanding - declares Lorenzo Barucca, Responsible for the “Green Station Legambiente” projects - has as its objective

the granting by FS and RFI, to national associations and non-profit organizations, of free loan facilities for communities in order to realize help centre, social and cultural association. This contributes to the construction of a social environment that is the driving force of sustainable development in the city, encouraging the processes of recovery of social trust and the offer of innovative and qualified services. Citizens will be able to take advantage of a kind of “Service Centre” at the station, as well as participate in activities related to the cultural, tourist and social promotion of the territory.

### ***Belgium scenario***

Belgium, at the end of the Second World War, had the densest railway network in the world with about 5,000 km of normal railway lines plus another 5,000 km of tram lines. After the war, 1,600 km of normal railway lines and almost all tram lines were abandoned. Towards the end of the 1970s, a unified national policy began to spread for the recovery of this heritage. In Flanders, the national activity was joined by that of the provinces, cities and municipalities that bought or rented the railway offices of disused lines by the SNCB, the national railway company, for the construction of paths that, along with towpaths and country roads, were going to constitute a first network of “greenways”. In the mid-90s, in Flanders over 250 km of disused railway lines had already been transformed into chemins du rail, train paths. In contrast, in Wallonia there had been only isolated and scattered initiatives. In 1987 the Commission du trafic lent promoted the creation of an inventory of abandoned lines: the results showed how the tramlines had been fragmented in such a way that they could no longer be reused for the construction of a network of green routes. On the other hand, the 80 disused lines of the SNCB, with a total length of about 1,000 km, could form the backbone of a network, including also towpaths, cycle paths, walking paths and country roads. In 1991, the Walloons proposed to create a first batch of five lines, identified as great routes for slow traffic, but initially met with some opposition, especially from the SNCB and the Belgian State. However, they continued to pursue the idea of creating a real network of routes reserved for slow traffic, called RAVeL (Réseau Autonome de Voies Lentes), in 1997, a framework agreement with the SNCB was reached, which provided for the concession in emphyteusis of about 1,000 km of disused lines for 99 years. Up to now, 900 km of green paths have been created of which almost 200 km uses disused railway lines.

### ***Spain scenario***

In Spain, after the “boom” in rail transport in the early 1900s, when there were about 13,000 km of railway tracks, the decommissioning processes began, which have led today to more than 7,000 km of disused railway lines.

At the beginning of the 1990s a national programme was launched, called Vías Verdes (greenways), coordinated by the Fundación de los Ferrocarriles Españoles (FFE), for the recovery never completed railway lines, for the development of initiatives related to eco-tourism and reuse. The pioneer of the initiative was, in 1993, the Ministerio de Obras Públicas (MOP), Transportes y Medio Ambiente (TMA); today the project is managed by the Ministerio de Medio Ambiente (MIMAM). The Vías Verdes programme is the result of a cooperation agreement between MOP and TMA, which has pledged to allocate €6 million a year for the construction of greenways.

In June 2001, the Spanish National Parliament, "Senado", unanimously voted for a motion encouraging the Spanish government to improve the necessary instruments and laws in order to convert all the disused railway lines of the country into Vías Verdes, through a procedure involving local and/or regional authorities interested in drafting a feasibility plan, with the collaboration, if requested, of the FFE. Once the land ownership status has been analysed, a design competition is then defined for the redevelopment of the greenway railway line, in agreement with local authorities and associations. Once the feasibility study has been completed, the agreed measures are incorporated into the construction plan, whose insurance can be financed in one of three ways: entirely by MIMAM, co-financed through MIMAM and other regional or local authorities (this is the most used), or through a specific financing project adapted to regional or local conditions.

The positive effect of the greenways on the areas they cross is not limited to the tourism sector, but produces other, very different effects on population and economic dynamics. These effects are more significant when considering rural areas, as in the case of the Sierra Vías Verdes (36 km already built). Here, thanks to the School-Training Laboratory and work programmes, groups of 60 unemployed young people were employed for two years to rehabilitate the four former stations along the greenways and to install tourist facilities. The Sierra Vías Verdes project has allowed the creation of 17 new jobs.

In 2005, 12 years after its launch, the balance of the programme in Spain was very positive. More than €60 million have been invested in converting 1,500 km of disused railway line into 45 Vías Verdes, and there are over 350 km of the project which have already been completed.

### ***Results and conclusion***

The disused buildings should remain efficient from a structural and decorative point of view, as continue to be used by railway customers. It is necessary to hypothesize a redefinition of the use of these buildings, also for extra-railway activities, which do not however contradict the use of the station as a service for the community. The reuse activities of the unmanned stations and the railway networks (paragraph 3) can be reconfigured in four macro areas:

- Social: assigning part of the premises of a station to a non-profit association that operates in the field of social services to support the most exposed and indigent population contributes to reinforce the concept of the station as a centre of service provision for the community and it promotes, above all, the continuity of the link with the inhabitants in the smaller centres;
- Tourism: in this regard, in Italy the Department of Tourism has developed a multi-regional plan to boost tourism in the South by financing 447 projects with about €530 billion from the European Union, provided they do not contribute to the further overlap of environmental areas;
- Commercial: establishment of entrepreneurial activities, with particular reference to the Italian law 44 on youth entrepreneurship, or to the recovery of traditional activities of local crafts in danger of extinction within the municipality where the station is located;
- Cultural: cultural activities such as exhibitions, or a museum (also concerning local traditions and customs), library activities, youth orientation to study or work,

educational activities (computer literacy, linguistics, university of the third age) and reconstruction of relational networks (e.g. TimeBank).

In Italy, contrary to what has happened in other countries, a coordination policy has so far been lacking, both at the regional and national level, that is aimed at enhancing the railway tracks no longer being used through the creation of “green routes”. The conversion of the disused railway lines into green routes has, in fact, been sporadic and the result of the initiative of some particularly sensitive local authorities, which have acted without having the necessary reference framework. Until now, an overall vision has been lacking: i.e. to consider the recovery of individual traits as a step towards the creation of a network. This lack has meant that there is no definitive data in Italy about the extension of the disused railway network.

The Spanish scenario is different, as it has designed a precise strategic framework that sees Spanish greenways, “Vias Verdes”, as a strategic factor for economic and social re-launching, succeeding in structuring a programmatic plan that promotes sustainable mobility in the territory, ecological transport, active tourism, sports and various outdoor activities, preservation of abandoned railway heritage, access of the population to nature, and environmental education activities. It is increasingly common for regional or local governments to invest in Vías Verdes projects because they are considered profitable from the point of view of social services and value creation.

**Table 2. Comparison between Italy, Spain and Belgium on conversion strategies in greenways**

Country	Year	Object disused	Pioneer	Results	Changing process	Partnership
Italy	Second half of 2000	1,700 stations; 3.000 km railway lines	Public Company and non-profit organization	345 station re-qualified, 325 km railway lines regenerated into greenways	Requalification and regeneration	Partnership with associations and loans' concessions
Belgium	Beginning of 1970s	6,600 km railway lines	Public Administration and Public Company	900 km of greenways and 200 km railway lines regenerated into greenways	Requalification and regeneration	Master agreement
Spain	Beginning of 1990s	7,000 km railway lines	Public Administration	1,500 km railway lines regenerated into greenways	Requalification and regeneration	Project financing

The authors compare the greenways programmes of the countries (paragraph 3) by individualising seven indicators (Table 2). Belgium is a pioneering country in the conversion programmes of disused railway lines. The analysis also shows that, while the role of the Public Administration in Spain and Belgium is preponderant, in Italy the Public Authorities are redefining their function in solving problems, reducing the direct intervention to assume the role of “directors” and “facilitators” of the collaboration between companies and third sector realities, but they are not the real pioneers of the redevelopment project. This is done through the enactment of new rules (incentives, tax advantages) that promote bilateral partnerships. Bilateral collaboration, pushing the two realities, the third sector and companies, especially public ones, to work together – albeit with different accents depending on the type – can be a valuable tool for sharing skills and mutual enrichment. “By analysing the phenomenon of partnership between a public company, such as FS, and non-profit, such as *Legambiente*, we can say that Italy holds a position of advantage over other European countries both for the initiatives carried out between these partners and for collaborations with other organizations. In fact, more than 1,700 stations, owned by the FS Group, are not present workers in railway station. Of these, 345 have already been redeveloped with a social focus with 63,683 square meters granted in free loan for a market value of 95,524,500 euros. Today they host Italian social associations, such as: Red Cross, Green Cross, Fire Brigade, Civil Protection, Natural Parks, Environmental or Cultural Associations”, said Barucca.

The FS Group as therefore adopted a policy of support and planning for social initiatives in the railway areas, in agreement with associations and local authorities. At the beginning some of these projects for social utility regarding the assignment of the territory of the stations, were signed with the Regions (Local Authorities) but the results were uncertain, negative and disappointing on the part of the latter. Through the bids-application, each association may request a loan to develop services and infrastructures necessary for the development of the territory, its communities and projects. The projects of the MoU will have a focus on regenerating spaces within railway stations and junctions, understood no longer as just places of arrival and departure but increasingly as meeting places, as well as poles of urban attraction, and social, environmental and collective mobility service centres, concluded Barucca. In this way “Green Stations” project regarded as having solidarity with the territory, a piece of economy that can produce values, such as trust, social capital, civic sense, solidarity, together with economic value and new opportunities. These projects contribute to the creation of a network of social relations within the territory, starting from these structures that for decades have evoked movements, hopes, and dreams of a better life.

It is not a matter of redesigning the disused railway lines but of activating integrated actions to recover disused infrastructures and buildings, coherent with the requirements dictated by new ways of using these goods “networks” (Torella, 2010).

It is desirable to think that these operations should allow, in the long-term, strategies that are without additional costs for companies in the railway sector, the preservation and maintenance of the structural efficiency of the building, the cleaning of the entire station area and the care of the spaces, green annexes, the surveillance of the building and of the areas open to the public and, where possible, services to railway customers.

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