Economic and Financial Document

2022

Annex

Ten years to transform Italy

Strategies for sustainable and resilient infrastructure, mobility and logistics

For the well-being of people and the competitiveness of companies, all while protecting the environment

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Presented by the Italian Minister for Sustainable Infrastructures and Mobility

Enrico Giovannini

MINISTERO DELL'ECONOMIA E DELLE FINANZE

CONTENTS

PREAMBLE

The Infrastructure Annex to the Economic and Financial Document (*Documento di Economia e Finanza*, DEF) illustrates the Italian Government's policy on infrastructure and mobility and constitutes the policy document on the basis of which the Italian Ministry of Infrastructure and Sustainable Mobility (*Ministero delle Infrastrutture e della Mobilità Sostenibili*, MIMS) intends to make choices regarding investments and other interventions aimed at providing Italy with the infrastructure capital it needs for sustainable development and making it more resilient to the climate crisis. The 2022 Annex stands in ideal continuity with the document drafted in 2021, in which the Italian Government had illustrated the new conceptual framework and the objectives pursued, also in light of the National Recovery and Resilience Plan (*Piano Nazionale di Ripresa e Resilienza*, PNRR) and the National Plan Complementary to the PNRR (*Piano Nazionale Complementare*, PNC). The 2022 Annex presents a more complete picture of the Italian Government's vision for the entire 2021-2030 decade, benefiting from the decisions taken with the Budget Law for 2022 and other regulatory interventions, as well as the analysis and planning work conducted by the MIMS over the past months.

As provided for in Article 216, paragraph 2, of the Code of Public Procurement (Italian Legislative Decree No. 50/216), pending the approval of the new General Transport and Logistics Plan (*Piano Generale dei Trasporti e della Logistica*, PGTL) – whose implementation started in January 2022 –, the **Infrastructure Annex constitutes the official mobility planning document**, annually updating what was approved by the Italian Council of Ministers on 13 November 2015. Moreover, pending the drafting of the Multi-Year Planning Document (*Documento Pluriennale di Pianificazione*, DPP), also taking into account the Strategic and/or Operational Plans for each thematic area, **the Annex identifies the priority infrastructures for Italy's development**, including interventions related to the transport and logistics sector, whose feasibility design is assessed as worthy of funding, to be implemented in line with the defined planning lines. Finally, this document includes all the elements functional to the fulfilment of *'Enabling Condition 3.2 - Comprehensive transport planning at the appropriate level'*, which directly affects the possibility of benefiting from the 2021-2027 European funds and will thus have to be guaranteed in every part and for the entire Programming period.

In line with **the European Union's political priorities - which see the fight against climate change and the digital transition as the main challenges for the near future -**, in order to contribute to achieving the sustainable development goals of the UN 2030 Agenda, the European Green Deal and the recent 'Fit for 55' reform package proposed by the European Commission, and in keeping with the *'do no significant harm'* principle, **the MIMS has embarked on a path of profound change**, starting with **important legislative and regulatory innovations aimed at including**

the various dimensions of sustainability in the process of planning, selecting, assessing and monitoring infrastructure works.

On the other hand, the MIMS is working **to achieve an increasingly unified and integrated vision of the planning, financing and implementation of all infrastructure networks of national interest and other public works within its jurisdiction.** At the same time, collaboration with other ministries that plan, finance and manage networks and works complementary to those of the MIMS, such as those in the energy, environment and digital technology sectors, is ongoing and will be further intensified in the future.

The document is structured in three sections and an Appendix.

The first section contains the policy lines, the process developed by the MIMS whereby projects are selected with a view to sustainable development - highlighting the consistency of policies in the use of the various sources of funding - the multimodal strategic axes within the European TEN-T network and the National Integrated Transport System (*Sistema Nazionale Integrato dei Trasporti,* SNIT), the actions for the bridging of the infrastructural gap among the various geographical areas, the initiatives planned for the implementation of the recent EU 'Fit for 55' package, and the mitigation and adaptation policies envisaged for the climate crisis. In order to identify the main critical issues for Italy's infrastructures and mobility (and therefore its needs), the first section also provides a brief analysis of the demand for multimodal mobility of passengers and goods, its medium-term trends also in terms of international comparisons, as well as short-term trends registered during the COVID-19 health emergency.

The second section summarises the updates to the main national plans, Programmes and documents in force that impact on mobility and the other sectors falling within the jurisdiction of the MIMS, **showing the consistency of the various sector documents with the general planning framework for investments in infrastructure and mobility with a view to** economic, social and environmental **sustainability.** This section is an update of what was already reported in the Infrastructure Annex to the July 2021 DEF, to which reference should be made for a more detailed description.

The third section provides both **a summary of the resource framework derived from the application of the described methodology and details of the priority interventions and Programmes for Italy's development**, including those recently identified in the PNRR and other available financial instruments.

Finally, the Appendix to the text contains a summary of the survey of the European regulatory framework on the 2030-2050 sustainable mobility objectives, drawn up by Working Group 2 - *'Sustainable Mobility'* - of the Interministerial Committee for Ecological Transition (*Comitato Interministeriale per la Transizione Ecologica*, CITE) with a view to updating the Ecological Transition Plan.

I. STRATEGIC OBJECTIVES OF INFRASTRUCTURE AND MOBILITY POLICY IN THE LIGHT OF PEOPLE'S NEEDS AND LOGISTICS

I.1 POLICY LINES FOR THE DEVELOPMENT OF SUSTAINABLE INFRASTRUCTURES AND MOBILITY SYSTEMS

Contributing to the mitigation of global warming while taking full advantage of the opportunities offered by technological and digital innovation is one of the strategic challenges for the future of the planet and humanity. In order to achieve this result, an unprecedented coordination of international and national policies is needed, as well as a profound change in the lifestyles of populations, starting with those of the richest and most developed countries like Italy. It is no coincidence that **the fight against climate change is one of the priorities of the European Union**, which aims at **becoming the first major geopolitical area on the planet with zero climate impact by 2050** with the 'Green Deal', 'Next Generation EU' and the recent 'Fit for 55' reform package.

Italy is at the forefront of policies aimed at the ecological and digital transition, for which very significant actions have been planned and are being implemented, fuelled by substantial funding. In particular, the Draghi administration has made a strong commitment to complying with the agreements signed at global and European level (Paris Agreement, European Green Deal, UN 2030 Agenda) from the outset. Italy's commitment in this regard also emerged during the G20 Italian presidency, where important results were achieved with respect to policies aimed at combating the climate crisis, relaunching development after the pandemic and combining economic choices and environmental policies.

At a global, European and national level, **the last two years have been characterised by the COVID-19 health emergency**, which has affected people's socio-economic conditions and quality of life, as well as their work, cultural activities and social interactions. Although the pandemic has mostly concerned human health and the economic and social spheres, it has also highlighted the fragility of Italy’s development model, whose economic, social and environmental unsustainability was clear even before the onset of the health emergency.

In this context, **infrastructures and multimodal transport networks have played a key role in ensuring the distribution of essential goods and economic activity** during the 2020 lockdown and the strong productive and social recovery phase of 2021. On the other hand, they **can play a crucial role in the digital and ecological transformation of the social and productive system,** as well as in accompanying changes in people's lifestyles with a view to sustainable development. Indeed, since the transport and construction sectors contribute more than half of climate-changing gas emissions and their impact on soil quality and biodiversity is very significant, their transformation can be an important factor in **stimulating the**

modernisation of the country, promoting even **stronger integration and international competitiveness**, and **overcoming the serious social and geographical inequalities** that afflict Italy, with an unacceptable gap between North and South, centres and suburbs, cities and inland and rural areas. In fact, the crisis induced by the pandemic has been bringing about profound changes also in the functioning of cities, to be accompanied and oriented by a clear **improvement of the local transport system**. Last but not least, in light of the average age of Italy's transport infrastructure, **extraordinary investments** are needed **to increase its useful life and ensure its efficiency and safety**. Technological and material innovation can enable a **quantum leap in the management of infrastructure networks and network systems**, also to accompany the ongoing transformation of the automotive industry and transport in general.

Given the need to adopt an integrated and multidisciplinary approach to the ecological and digital transition that may leave no sector, area or segment of the population behind, the **MIMS has embarked on a path of profound change in line with its new name**, where '*sustainability*' becomes an objective for both infrastructure and the mobility of people and goods. This path has made it possible to adapt the actions of the Italian Government to the principles approved by G20 leaders, who define as '*sustainable*' infrastructures that are able to pay attention to the entire life cycle of the work, be resilient to disasters and unforeseen events, be decided on the basis of quantitative evaluations based on quality and expected social impacts, and internalise in the selection and design process of the works issues proper to sustainable development such as, for example, the carbon footprint produced.

'*Ten years to transform Italy*' may seem like a long time, but it is not; today, we are facing an epochal challenge, and the effects of the climate crisis are already visible and tangible, with potentially disruptive impacts on infrastructures and mobility systems. The resources made available by the PNRR and other national and European sources, though substantial, are not sufficient on their own to ensure the resilience and sustainable development of Italy's infrastructure and multimodal networks. It is also for this reason that the **MIMS has implemented important regulatory and normative innovations over the past year to include the various dimensions of sustainability in the way infrastructure works are planned, selected, evaluated, designed and monitored**. Said innovations concern:

- the definition of the **new design and evaluation tools** adopted by the MIMS, such as the Sectoral Guidelines for the Evaluation of Investments in Public Works;
- **the Guidelines for the drafting of the Technical-Economic Feasibility Project** issued by the Superior Council of Public Works with the introduction of the Sustainability Report of the works;
- **the Guidelines on the conduct of Public Debate** required for many more initiatives than in the past, thanks to the reduction of the value thresholds of works above which it becomes mandatory.

A significant contribution to sustainable mobility will be provided by actions that, following the *'A-S-I'* paradigm, help to avoid substitutable trips ('*Avoid*'), favour the use of more efficient modes of transport ('*Shift*') and increase the efficiency and safety of transport systems ('*Improve*'). The issue of substitutable

journeys is complemented, at least when it comes Italy, by the profound transformation taking place in the distribution of the population over the national territory, internal migratory phenomena, and the increase in the average age of the population. By interacting with each other, these variables define, as witnessed by ISTAT statistics, an evolving Italy, which will require different mobility services and, potentially, less intensive recourse to classic ones in favour of new forms of mobility.

The monitoring and governance of the mobility demand transition, together with technological innovations and general economic assessments, will become the reference point for the evolution of service networks (mobility, energy, telecommunications), their physical and functional integration, and their sizing, with a view to contributing to the development of a more connected country with fewer inequalities, capable of facing the challenges of the future, including that of **evolving the '*multimodal transport corridors*', which for decades have guided Europe's infrastructural development, into '*multi-service corridors*'**, which reduce land use, improve maintenance supervision and accelerate the processes of strengthening and developing individual networks.

If *Avoid* represents a moment of epochal change in habits and trends, the theme of *Shift*, also observed during the pandemic crisis, is the moment of acceleration. Here, **intermodality may finally constitute a new paradigm that is concretely practised and not just theoretical**. The availability of new technologies, the evolution of the market for factors of production, the trend in energy prices, the need to reduce climate-changing gas emissions throughout the production chain, as well as the huge investments planned with the PNRR and other funds, are changing the propensity of companies and people towards intermodality and rail transport, with a lively market demand for new services.

To address these challenges, two lines of action will be pursued simultaneously. The first, which will be geared towards **meeting the immediate needs of the mobility system**, will include actions aimed at:

- **ensuring the maintenance of the existing infrastructure assets**, preventing risks also through the use of innovative technologies;
- **improving the efficiency of transport systems** to reduce risks and negative impacts related to health emergencies and international crises;
- **timely implementing the investments planned** with the PNRR and other available national and European funds;
- **implementing important system and sector reforms.**

The second, which is to be pursued simultaneously with the first, will be aimed **at directing choices towards the creation of more sustainable and resilient infrastructures** - first and foremost to seismic risks and natural disasters - capable of reducing existing inequalities and responding to the needs of businesses and people, while complying with the *Do Not Significant Harm* (DNSH) principle, which implies that all planned investments and reforms to be improved must not damage the environment, but preserve it for future generations.

In light of these assumptions, the medium- to long-term planning of investments and services focused on:

- **the implementation of integrated transport systems for sustainable**, long-distance and local **mobility,** also with a view to reducing pollution in cities and

moving towards decarbonisation. In this perspective, the following are fundamental:

- the **development of high-speed** passenger and freight transport, especially in the south, and the **simultaneous strengthening of regional transport**, not least to guarantee a real right to mobility for the many commuters who use public transport to get to work every day;
- **the environmentally friendly renewal of the vehicle fleet** for land and sea transport;
- **the strengthening of intermodality and integrated logistics,** with a focus on the modernisation of ports, also with a view to ecological transition;

- **investments in subsidised social housing and quality housing,** as well as in public housing, in line with the objectives of energy efficiency and increasing people's well-being, as set out in the Urban Agenda for Sustainable Development;
- **the upgrading and completion of primary water infrastructures**, also to anticipate issues arising from the climate crisis and thus increase the adaptation and resilience of supply systems, also reducing water losses.

The following commitments are transversal to the lines of action mentioned:

- the **simplification of the administrative procedures** governing the various stages whereby infrastructure is defined, designed and implemented, with a view to speeding up the implementation of works without affecting the legality, competition and transparency of choices before citizens and businesses;
- the **construction of an integrated and transparent information system**, covering all phases of infrastructure construction and monitoring and the operation of network systems, in order to anticipate critical issues, assess the status of projects and foster the involvement of civil society in decision-making and implementation processes.

Overall, the planning process defined by the MIMS in recent years, which is summarised in this document, defines the strategic vision, the planning process for sustainable infrastructures and mobility, and the selection of priority infrastructures for Italy's development over the next decade, identifying the cost associated with their realisation and the amount of funding available. It also describes the main regulatory and procedural reforms underway, which have also been enacted in order to accelerate the implementation of the planned interventions.

I.2 THE PROCESS FOR SELECTING INFRASTRUCTURE WITH A VIEW TO SUSTAINABLE DEVELOPMENT: APPROACHING THE GENERAL TRANSPORT AND LOGISTICS PLAN (PGTL)

The process of selecting infrastructures and identifying policy choices plays a crucial and decisive role in addressing the challenges facing Italy, including that of defining a more resilient, inclusive and sustainable development model. As already highlighted, the MIMS has embarked on a path of profound change in line with its new name, choosing to adopt an **integrated and multidisciplinary approach to**

sustainable development, which makes it essential to design a rational process of planning and selecting the infrastructures to be built, as well as defining their characteristics and the impacts they are expected to produce. On the other hand, this approach guarantees a structured dialectic with the various stakeholders through a reliable, transparent and traceable decision-making and procedural process.

During 2021, starting from the definition of the objectives, reforms and infrastructure and mobility investments included in the PNRR and PNC, the MIMS made choices consistent with this new conceptual and policy framework, in line with the principles and conditionalities of Next Generation EU. With the Infrastructure Annex to the 2021 DEF, the choice in favour of sustainable development was made clear, showing, among other things, an exercise in assessing the impact of the PNRR in the light of the Sustainable Development Goals (SDGs) defined by the UN in the 2030 Agenda. Annex 2021 also incorporated the strategies introduced with the PNRR and PNC, as well as the investments and reforms defined therein, ensuring medium- to long-term planning and an integrated strategic vision of the infrastructure and mobility system.

The focus on the issue of selecting public investments from a sustainability perspective has also become even more relevant in relation to the recent amendments to the **regulation defining the role of the Interministerial Committee for Economic Planning and Sustainable Development** (*Comitato interministeriale per la Programmazione economica e lo sviluppo sostenibile*, CIPESS)[1]. Indeed, the new regulation provides for the incorporation in CIPESS procedures and assessments of the pursuit of the SDGs consistent with the framework of the 2030 Agenda, the '*National Sustainable Development Strategy*' and the '*Fair and Sustainable Welfare*' indicators.

Furthermore, in implementation of the commitments undertaken in the PNRR, the Italian Government recently adopted a draft enabling act with the principles and guiding criteria for the **reform of the Code of Public Procurement**. The enabling act provides, among other things:

- the pursuit of **objectives of strict adherence to European directives** by introducing or maintaining levels of regulation corresponding to the minimum required by those directives;
- the strengthening of the **qualification of contracting stations;**
- the **reduction and certainty of tendering**, contracting and implementation **times** for public works, including through the use of digitisation;
- the **promotion of employment stability and equal** generational, gender and labour inclusion **opportunities** for people with disabilities;
- the provision of specific simplifications to encourage **investments in green and digital technologies**, as well as in innovation and research, for the achievement of the sustainable development goals of the UN 2030 Agenda.

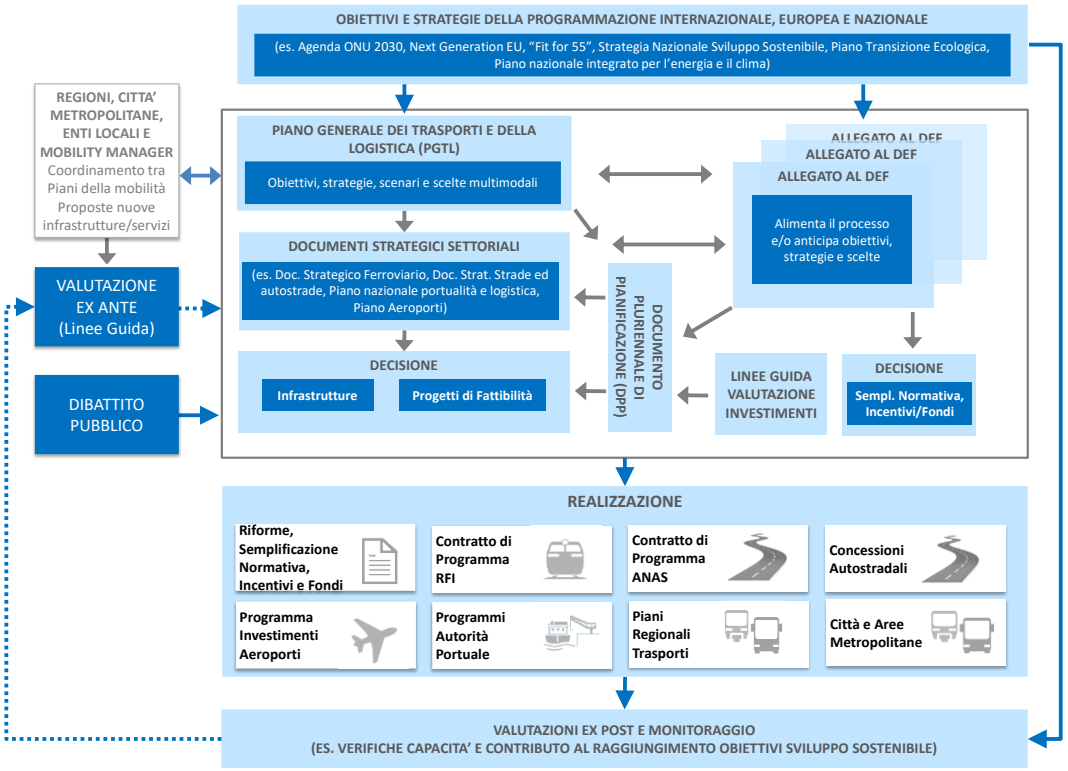
[1] With the reform provided for by Italian Law No. 141 of 12 December 2019, converting the so-called '*climate decree*', which provides for the transformation of CIPE into CIPESS - *Comitato interministeriale per la programmazione economica e lo sviluppo sostenibile* (Interministerial Committee for Economic Planning and Sustainable Development) - public investments are oriented towards national sustainable development objectives.

The MIMS approach to planning, Programming and design of infrastructures and mobility in the medium to long term is based on the concept of a 'process plan', i.e., an innovative method with which to feed the decision-making process for the selection of infrastructures and mobility services over time. In this context, infrastructure planning should not be just an administrative act, but a process that sees the mobilisation of technical expertise, stakeholders and civil society to ensure full mobility for citizens and goods on the national territory, making Italy a more accessible country for international markets as well. This approach sees its regulatory foundation in the Tenders Code (Italian Legislative Decree No. 50 of 18 April 2016, as amended and supplemented), which has identified the General Transport and Logistics Plan (PGTL) and the Multi-year Planning Document (DPP) as the tools for planning and Programming (Articles 200-201) and for the design (Article 23) of the infrastructure and priority settlements for Italy's development. Moreover, the same legislative decree also introduced the Public Debate, which is mandatory for 'major works', as a planning tool to achieve the realisation of shared works (Art. 22).

This approach to infrastructure selection and implementation (Figure I.2 .1) starts from **the transposition of the objectives and strategies of international** (e.g., UN 2030 Agenda), **European** (Sustainable and Smart Mobility Strategy, Next Generation EU, 'Fit for 55', etc.) **and national** (National Sustainable Development Strategy, Ecological Transition Plan, National Integrated Energy and Climate Plan, etc.) **planning**, as well as sector-based documents, in order to guarantee coherence between policies and synergy between objectives, based on a medium-long term vision towards which to orient national infrastructure and transport policy.

This vision outlines a unitary framework within which to draft the new **General Transport and Logistics Plan (PGTL)**, whose activities have finally begun; starting from a critical analysis of the current context and of the main macroeconomic, social, geographical and environmental trends underway, said plan will define sustainable objectives to be pursued and identify the strategies and related actions to achieve these objectives through quantitative assessment tools.

FIGURE I.2.1: THE SUSTAINABLE TRANSPORT INFRASTRUCTURE PLANNING, PROGRAMMING AND DESIGN PROCESS - 'PROCESS PLAN'



Source: STM of the MIMS.

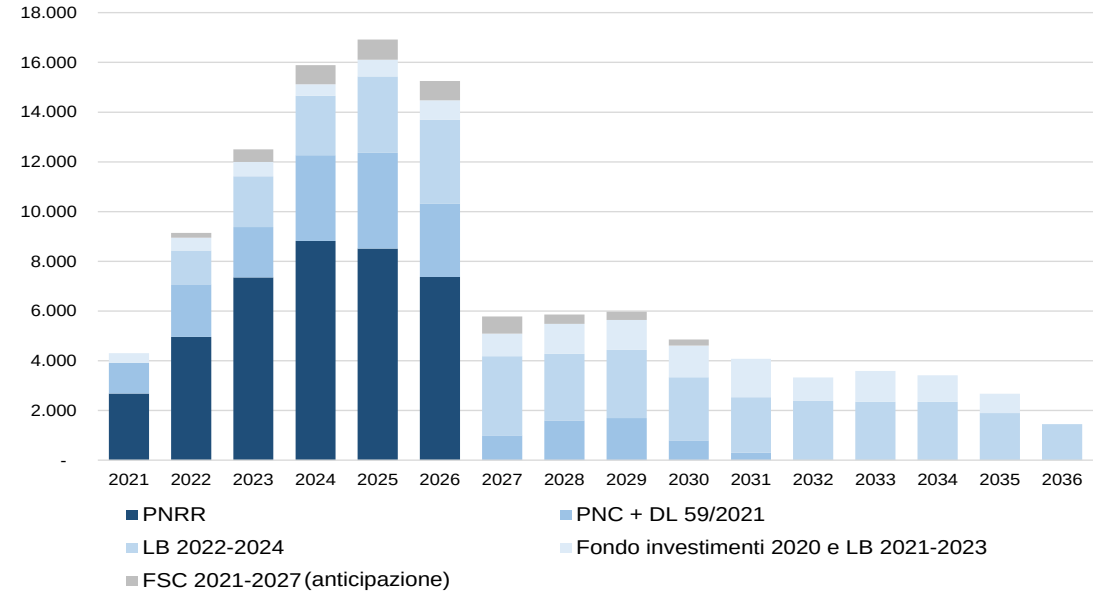
Specifically, Ministerial Decree No. 14 of 21 January 2022 appointed a Commission to draw up the '*Policy Document for the identification of priority infrastructures and mobility systems for the sustainable development of the country*' and to provide the strategic guidelines for the definition of sector-based plans; said activities are prodromal to the drafting of the PGTL, the text of which will be submitted to local authorities to ensure consistency between national and regional planning.

Since transport infrastructures are not the end, but the means by which to guarantee the right of mobility for people and goods, it is imperative that **adequate quantitative assessment tools** be used in the planning process to forecast the demand for mobility, estimate the level of utilisation of infrastructures, and assess the impact of changes on economic, social, local and environmental development, based on an integrated '*transport-area*' planning vision. In this sense, the **Centre for Innovation and Sustainability in Infrastructure and Mobility (*Centro per l'innovazione e la sostenibilità in materia di infrastrutture e mobilità*, CISMI)** recently established at the MIMS will make a fundamental contribution to the development of these quantitative tools, in collaboration with other ministries and the world of research, both national and international.

The PGTL should be understood as an integrated plan that will provide multi-sectoral indications and serve as a tool for interaction and integration

between the various national planning areas. In line with European good practices, the forecast of transport demand and supply scenarios, together with capacity and sustainability checks, will make it possible to identify, at the different geographical scales of analysis, the critical aspects of the system (in terms of infrastructures and services), for which feasibility projects will have to be launched in order to identify the best possible solutions to fill the needs that have emerged and the estimated infrastructural gap. With reference to this last aspect, consistently with the provisions of Article 15, paragraph 1 of Italian Law Decree No. 121 of 10 September 2021 (converted with amendments by Italian Law No. 156 of 9 November 2021), the MIMS and the Agency for Regional Cohesion (*Agenzia per la Coesione Territoriale*) carried out a reconnaissance of the number and functional classification of health, welfare and education facilities, as well as the number and extent - with an indication of the relative functional classification - of road, motorway, rail, port, airport and water infrastructures in order to ensure the **recovery of the infrastructural gap between the different geographical areas of the national territory**, as well as to guarantee similar essential levels of infrastructures and related services, having consulted the competent administrations and the technical structures of the Italian Minister for the South and Territorial Cohesion, by note No. 20228 of 31 December 2021 forwarded to the Department for Regional Affairs and Autonomies. At the end of the reconnaissance, the priority criteria and actions to be pursued for the recovery of the infrastructural and development gap resulting from the aforementioned reconnaissance were proposed. To finance actions to reduce this infrastructure gap, the MEF established the '*infrastructure equalisation fund*' with a total endowment of EUR 4,600 million for the years 2022 to 2033.

FIGURE I.2.2: RESOURCES FOR SUSTAINABLE INFRASTRUCTURES AND MOBILITY IN CAPITAL ACCOUNT PERTAINING TO THE MIMS 2021-2036 (EUR MIL)



For the sake of completeness, Figure I.2.2 above shows the capital resources pertaining to the MIMS defined in the last two years and related to the 2021-2036

period, which, though not taking into account the resources allocated in previous years, largely contribute to outlining the framework of MIMS Programming for the next decade.

Within the framework of the proposed planning process, the **drafting of the PGTL is integrated with that of the sectorial strategic documents**, understood as single-mode master plans which, having incorporated the PGTL's general objectives and planning lines for intermodal transport, detail the choices for each transport mode; these include (Table I.2.1)

- the **Strategic Rail Mobility Document** (sent to Parliament and the Unified Conference in December 2021 for the required opinions);
- the **Strategic Document for Roads and Motorways** (in progress);
- the **National Road Safety Plan** (approved by the CIPESS in April 2022);
- the **Programme Contracts with RFI and ANAS;**
- the **National Strategic Plan for Ports and Logistics** (in progress);
- the **National Cold Ironing Plan;**
- the **National Maritime Safety Programme;**
- **Maritime Spatial Management Plans;**
- the **National Airport Plan** (currently being drafted by ENAC);
- the **General Plan for Cycling Mobility** (in progress);

in addition, of course, to plans relating to other areas of MIMS competence, including:

- **Programmes for sustainable living** (e.g., the National Innovative Quality of Living Programme, PINQuA**)**
- the **Water Resources Protection Plan.**

TABLE I.2.1: SYNOPTIC OVERVIEW OF MIMS PLANNING, INVESTMENTS AND SECTOR REFORMS

	LOGISTICS AND SUSTAINABLE MOBILITY						SUSTAINABLE LIVING	WATER RESOURCES
	RAILWAY SECTOR	ROAD SECTOR	LOGISTICS AND PORTS	AIR TRANSPORT	SUSTAINABLE URBAN MOBILITY	CYCLING MOBILITY		
PLANS	Strategic Document	Strategic Document	National Strategic Plan for Ports and Logistics	National Airport Plan	National Strategic Plans for Sustainable Mobility	General Plan for Cycling Mobility	Innovative National Quality of Living Programme	National plan for infrastructure and safety interventions in the water sector
		2030 National Road Safety Plan	Cold ironing plan		Urban sustainable mobility plans (local)	Biciplan (local)	*'Safe, green and social: redevelopment of public housing'* Programme	
	Programme Contract with RFI	Programme Contract with ANAS	National Maritime Safety Programme					
			Maritime Spatial Management Plans					
FINANZIAMENTI								
PNRR	X			X	X	X	X	X
FNC	X	X	X		X			
LDB	X	X	X		X	X	X	X
FSC	X	X	X		X	X		X
OTHER	X	X	X	X	X	X	X	X
REFORMS ADOPTED AND IN PROGRESS	Speeding up administrative procedures for the approval of the Programme Contract with RFI and for the approval of railway projects (a) (2021)	Transfer of ownership of bridges and viaducts to first-tier road owners (b) (2021) New Guidelines for Risk Management and Monitoring of Existing Bridges (c) (2021) Amendments to the Italian Highway Code (2021)	Simplification of the approval process for strategic port planning and new authorisation procedures for concessions (d) (2022) Regulation for the Single Customs and Control Counter (SUDoCo) (e) (2021) Speeding up the approval process for cold ironing infrastructure (2022)		Speeding up of administrative procedures for the approval of TRM projects (f) (2021)		urban regeneration law (g) (2022)	Reform of the National Plan of Infrastructure and Safety Interventions in the Water Sector (h) (2022)

(a) Article 5 of Italian Decree-Law No. 152 of 6 November 2021, converted into law, with amendments, by Italian Law No. 233 of 29 December 2021, which provided for simplifications relating to the approval of RFI Programme contracts.
(b) Article 25 of the Italian Highway Code, as last amended by Article 1, paragraph 1, letter a-quinquies), and paragraph 1 - bis) of Italian Decree-Law No. 121 of 10 September 2021, converted, with amendments, by Italian Law No. 156 of 9 November 2021. With Ministerial Decree No. 485 of 30 November 2021, the list of the structures of subways and overpasses, including safety barriers in overpasses, was approved, with the indication of the relevant owner entities.
(c) Italian Ministry of Infrastructure and Sustainable Mobility Decree No. 493 of 3 December 2021, 'Guidelines for Risk Classification and Management, Safety Assessment and Monitoring of Existing Bridges'.
(d) Article 4, paragraph 1-septies of Italian Decree-Law No. 121 of 10 September 2021, converted with amendments by Italian Law No. 156 of 9 November 2021. Article 3 (Concession of State-owned port areas) of the Annual Market and Competition Bill 2021 (AS 2469). Adoption of the Ministerial Decree provided for in Article 18, paragraph 1, of Italian Law No. 84/94 (in progress).
(e) Italian Presidential Decree No. 235 of 29 December 2021, Regulation regulating the Single Customs Office and controls (S.U.Do.Co.) (OJ General Series No. 310 of 31 December 2021).

(f) Article 44, paragraph 1-ter, of Italian Decree-Law No. 77 of 31 May 2021, converted, with amendments, by Italian Law No. 108 of 29 July 2021.
(g) AS 1131 - unified text bill.
(h) Article 2, paragraph 4-bis of Italian Decree-Law No. 121 of 10 September 2021, converted with amendments by Italian Law No. 156 of 9 November 2021.

A summary of these Plans and their progress are described in Chapter II below. Pending the drafting of the PGTL, these sector-based documents will contribute, as soon as they become available, to the planning process by feeding into the Annex to the DEF, which, as is well known, defines the list of priority infrastructures for Italy's development, including intermodal transport and logistics projects whose implementation is consistent with general objectives and strategies.

The planning and selection of works in compliance with the spending constraints and in line with the general objectives and strategies defined by the PGTL is entrusted, according to the current legal framework, to the drafting of the **Multiannual Planning Document (DPP)**, which also includes the results of the assessment and selection procedure of the works to be realised and designed (feasibility project), as well as the intervention priorities and the definition of the criteria for the ex-post evaluations and monitoring of the interventions undertaken.

The selection and choice of infrastructures is carried out through the application of the '***Guidelines for the evaluation of investments in public works***' (Italian Legislative Decree No. 228/2011) drafted in 2017, which contribute to an effective, consistent and homogeneous evaluation of the interventions to be included in the DPP and/or to be implemented, through a multi-criteria approach. This tool is also preparatory to the identification of priorities and defines the methodology for the ***ex-ante*** **assessment of infrastructure needs** and individual works, as well as the criteria for selecting the works to be financed (e.g., in terms of economic impact, project maturity status, resources already invested and residual financial requirements).

The selection of priorities cannot disregard the assessment of their capacity both to **contribute to the achievement of the general objectives** (*SDGs,* '*Fit for 55*', etc.) and **to '***Do Not Significant Harm***'** (*DNSH*) **to the environmental objectives** as set forth in the European Taxonomy Regulation (EU 2020/852 of 18 June 2020). With this aim, the abovementioned Guidelines have recently been implemented for some specific categories of interventions, highlighting the sectoral aspects and strengthening the selective criteria on the basis of environmental, social and governance dimensions, in line with European strategic guidelines. In particular, Ministerial Decree No. 496 of 7 December 2021 recently issued the '***Operational Guidelines for the Railway Sector***', defined in cooperation with the European Investment Bank (EIB). **Similar documents for the road and rapid mass transport sectors are** also at an **advanced stage of definition.**

With reference to the *ex-ante* design and assessment, on 29 July 2021, the Superior Council of Public Works approved the '***Guidelines for the drafting of the technical and economic feasibility project to be used as the basis for the awarding of public works contracts of the PNRR and PNC***', in order to identify projects that can meet the requirements of sustainability and innovation from a technical and qualitative point of view, also directing the Commissioning bodies to select their economic operators in this sense; at the same time, the approval process has been made more efficient, also through targeted simplification tools.

This makes it possible to carry out a public debate with stakeholders and regions on a deeper, more productive and efficient level of knowledge of the work and its impacts.

***Ex-post* evaluation** is, pursuant to Article 2 of the Italian Prime Ministerial Decree of 3 August 2012, the systematic activity aimed at measuring the impacts of the works carried out, in order to improve the efficiency of the planning process and the overall effectiveness of public investments. Ex-post evaluation activities, according to the provisions of Italian Legislative Decree No. 228/2011, are carried out taking into account the object and objective of the evaluation. The object of the evaluation is, as a rule, individual public works, or, where useful and relevant, groupings of works with functional, sectoral and geographical links. The objective of the evaluation measures the results and impact of public works that have been tested and have entered into operation, as well as the cost-effectiveness and efficiency of their realisation. It is also possible to carry out an evaluation of works under construction or not yet in operation. In this case, the evaluation activity to be carried out is more of an **in-progress evaluation** and is mainly focused on the progress of the activities, according to the data provided by the monitoring system.

At the same time, by defining year by year - starting from 2016 - the Italian Government's policy on infrastructure and transport, the **Infrastructure Annex to the DEF** constitutes the policy document that is feeding this process according to a rolling approach (updates/details in subsequent steps), anticipating many actions of the PGTL and the planned DPP, such as the definition of objectives and strategies, the identification of interventions to be carried out and feasibility projects of priority works for the country up to the 2030 horizon, the financing for the construction and/or completion of priority infrastructures of national interest. In addition, it monitors the progress of investments at each stage of planning, also in order to verify the achievement of the objectives set at the international and supranational level.

Structured this way, the entire planning process helps to ensure quality projects that are functional in meeting mobility and accessibility needs and avoiding over-design, i.e., projects that can be realised on time and at a reasonable cost. A further contribution to this quality process is the institution of the mandatory **Public Debate** for 'major works' (Italian Prime Ministerial Decree No. 76 of 10 May 2018). The use of this tool was expanded by Ministerial Decree No. 442 of 12 November 2021, which identified new dimensional thresholds for the works for which this institution is mandatory - lower than those provided for previously - and reduced the time required for preliminary investigations. In addition, Ministerial Decree No. 627 of 30 December 2020 established the **National Commission for Public Debate**, which is called upon to monitor the conduct of the procedure and compliance with the participation of all interested parties, as well as to provide suitable and timely publicity and information on the projects.

As structured, the planning decision-making process **provides for the possibility of revising previous choices** according to, for example, changed context conditions (mobility demand, reference infrastructure scenario, macroeconomic trends, etc.).

With reference to the planning process defined, in order to achieve an intermodal and integrated passenger and freight mobility system at the different geographical scales, **coordination of national planning with regional and**

metropolitan planning is fundamental. In order to achieve this coordination, starting in September 2021, the Ministry organised specific meetings between the Minister and the top management of the MIMS on the one hand, and the Presidents of the Regions and the Mayors of the Metropolitan Cities on the other. During the meetings, the strategic principles of MIMS planning were shared, the criteria of '*Enabling Condition 3.2 - Comprehensive Transport Planning at the Appropriate Level*' were illustrated, and alignment with European strategies was highlighted, in particular the actions implemented for the realisation of the infrastructure for alternative fuels; moreover, the '*Regional Transport Plans*' *were* described by the Regions in order to verify their consistency with national planning. During the meetings, the investments planned by ANAS and RFI were also illustrated. *After the meetings with the Minister, the joint work continued with the individual regions, also with a view to defining the contents of the advance allocated to infrastructure from the 2021-27 Development and Cohesion Fund. This advance was approved by the CIPESS at its meeting on 15 February 2022, for a total of EUR 6.~~3~~* ***4.680*** *billion* ***(CIPESS Resolution No. 1/2022)****, of which EUR* ~~*5.6*~~ ***3.689 billion was*** *earmarked for flagship projects that can be implemented immediately****, EUR 0.582 billion for local projects with immediate start-up of work, and*** *EUR* ***0.408 billion for one flagship project in the CIS Messina-Catania-Palermo railroad area****.*

Another contribution to the entire planning process is provided by **specific thematic commissions** appointed by the MIMS and composed of renowned experts, with the aim of delving into specific topics in order to better plan infrastructure investments and contribute to the drafting of the PGTL. Of these, three have recently completed their work:

- the '**Finance Commission for Sustainable Infrastructures and Mobility**', established in April 2021, identified new financial instruments for the realisation of infrastructural interventions, mobility and sustainable living, so as to steer private capital in this direction as well, and proposed models for assessing the economic, social and environmental impacts of the projects initiated by the Ministry, in line with the sustainable development strategies promoted by the UN 2030 Agenda and the European Union;
- The '**Climate Change, Infrastructure and Sustainable Mobility Commission**', established in April 2021, analysed the consequences of climate change for infrastructures and transport systems, and proposed initiatives to anticipate and mitigate the risks to which the infrastructure system, also at the level of individual cities, is exposed, in order to increase its resilience and adaptive capacity;
- the '**Study Commission on Local Public Transport**', set up in January 2021, focused on a possible reform of the sector, analysing the main critical issues relating to regulations and processes concerning local public transport and outlining the improvement actions to be implemented in terms of both rationalising the regulatory framework and planning the TPL basins and making the sector's financing and management systems more efficient.

In order to analyse sectoral scenarios and identify possible options for achieving the European and national targets, whether defined or to be defined in the negotiations of the '*Fit for 55*' package and in the decarbonisation strategies to 2050 in the areas of MIMS competence, a specific **Organisational Structure for the Green**

Transition of Mobility and Infrastructure (*Struttura organizzativa per la transizione ecologica della mobilità e delle infrastrutture*, STEMI) was also set up, as composed of a Steering Committee and a Technical Committee, assisted by a Group of Experts. The main functions of this structure include the coordination of the negotiation of legislative proposals falling within the competence of the MIMS within the European Commission's advisory groups; the coordination of interlocutions with other Ministries for the definition of the Italian Government's policy documents in matters related to the '*Fit for 55*' initiative, also for the purposes of the elaboration of the Plan for Ecological Transition being updated by the Interministerial Committee for Ecological Transition (*Comitato Interministeriale per la Transizione Ecologica*, CITE), the National Sustainable Development Strategy (*Strategia Nazionale di Sviluppo Sostenibile*, SNSvS) and the new National Integrated Energy and Climate Plan (*Piano Nazionale Integrato Energia e Clima*, PNIEC).

According to this new approach to transport planning, a central role is also played by (company and school) mobility managers and the mobility management policies they define: witness the Home-Work Travel Plans (*Piano Spostamento Casa-Lavoro*, PSCL), which through the area mobility managers establish a link between the needs of companies, public administrations and schools, with transport and mobility planning both at municipal (e.g., drafting of Urban Traffic Plans - PUT, Sustainable Urban Mobility Plans - PUMS) and at large area (e.g., TPL Plans). With this aim, in May 2021, Inter-Ministerial Decree No. 179, as issued by the Italian Minister of Ecological Transition in agreement with the Italian Minister of Infrastructure and Sustainable Mobility, defined the implementation modalities of the Relaunch Decree (of the provisions of Art. 229, paragraph 4, of Italian Decree-Law No. 34 of 19 May 2020), defining the figures, functions and requirements of mobility managers. In August 2021, by Directorial Decree No. 209, these two Ministries also adopted the text of the Guidelines for the drafting of the PSCL referred to in paragraph 5 of Article 3 of the Decree of the MITE in agreement with the MIMS No. 179 of 12 May. Finally, in November 2021, with Inter-Ministerial Decree No. 436, the Italian Minister for Ecological Transition, in agreement with the Minister for the Economy and Finance and the Minister for Infrastructure and Sustainable Mobility, allocated resources in the amount of EUR 50 million for the year 2021 to companies, public administrations and educational institutions that had prepared a PSCL.

The quality of the entire planning process is ensured by a capillary and constant monitoring system for each phase of the process described, also in order to verify the achievement of the objectives set at an international and supranational level. This task will be performed by the Technical Mission Structure (*Struttura Tecnica di Missione*, STM) - which already carries out, among other things, the monitoring of mobility trends during the COVID-19 health emergency - and the Mission Unit for the implementation of PNRR interventions and reforms, which monitors the implementation of PNRR interventions and reforms and ensures the proper financial management of PNRR incentive interventions under the competence of the MIMS.

In conclusion, in continuity with what has been done for the last few years, the **Infrastructure Annex to the 2022 DEF** incorporates the new political and technical guidelines, as well as the investments and reforms approved in 2021, in order to feed a rational process of integrated planning of infrastructures and mobility based

on intermodality and interconnection (tangible and intangible), safety (maintenance and prevention), equity and sustainability (environmental, economic and social), as well as system and sector reforms.

I.3 MULTIMODAL STRATEGIC AXES WITHIN THE EUROPEAN TEN-T NETWORK AND THE INTEGRATED NATIONAL TRANSPORT SYSTEM (SNIT)

I.3.1 EUROPEAN TRANSPORT NETWORKS AND EUROPEAN FUNDS ALLOCATED TO THEIR DEVELOPMENT

The European transport infrastructure policy focuses on long-term planning for the pursuit of a Single European Transport Area, within which ambitious targets for safety, decarbonisation, digitalisation and sustainability are to be achieved. To this end, the European Commission has designed, in full agreement with the Member States, a strategy to encourage a modal shift towards more sustainable modes of transport (maritime transport and rail transport), including through the use of innovative technologies (Intelligent Transport Systems - ITS and Cooperative ITS) for managing traffic flows, and pursues:

- the reduction of infrastructure gaps between member countries;
- the improvement of interconnections between national networks and modes as well as network interoperability levels;
- the elimination of interference between urban, regional and medium/long-distance rail traffic.

The objective of the European policy for the development of trans-European transport networks (TEN-T) is a key part of the European Union's action to promote the free movement of goods, services and citizens and to strengthen economic, social and regional cohesion between all member states and their regions, as well as outside the EU. In this context, the Treaty on the Functioning of the European Union (TFEU) devotes three articles (Art. 170-172) in Title XVI (entitled, precisely, 'Trans-European Networks') to the topic. In particular, together with the subsequent Art. 172, Art. 171 provides the specific legal basis for the adoption of the measures on TENs that underpin the adoption, by the European Parliament and the Council, of Regulations No. 1315 and No. 1316 of 11 December 2013, which aim at planning and developing trans-European transport networks based on a 'double-layer construction', comprising **an extended network of infrastructures to be completed by 2050 (Comprehensive network) and a narrow network consisting of the most strategically important infrastructures to be completed by 2030 (Core network)**.

The TEN-T network consists of a set of linear (rail, road and river) and point infrastructures (urban nodes, ports, rail-road terminals and airports) considered as 'significant' at EU level. In order to ensure the most synchronised implementation of the Core Network as possible, nine Core Network Corridors (or core network corridors) were created focusing on the following aspects:

- modal integration;

- interoperability;
- coordinated development of cross-border infrastructure.

At the European level, the current priority is to ensure the continuity of the Corridors, creating missing links where necessary, improving the degree of interoperability with cross-border networks and ensuring appropriate connections between the different modes of transport, without forgetting the importance of resolving the existing 'bottlenecks' at the main urban nodes. Four of the nine 'Core Network Corridors (CNC)' identified by the European Union cross the Italian territory:

- **the Mediterranean Corridor** crosses the whole of Northern Italy from West to East, connecting the nodes of Genoa, Turin, Milan, Verona, Venice, Trieste, Bologna and Ravenna;
- **the Rhine-Alpes Corridor** connects the passes of Domodossola and Chiasso with the core port of Genoa by passing, as an overlap to the Mediterranean Corridor, through the urban centres of Milan and Novara. The core airports are Genoa, Milan Malpensa, Milan Linate and Bergamo;
- **the Baltic-Adriatic Corridor** connects Austria (Tarvisio pass) and Slovenia to the North Adriatic Core ports of Trieste, Venice and Ravenna and Ancona, passing through the urban nodes of Udine, Padua and Bologna;
- **the Scandinavian-Mediterranean Corridor** crosses the entire country, descending from the Brenner Pass to Sicily and passing through the urban nodes of Trento, Verona, Bologna, Florence, Rome, Naples, Bari, Messina and Palermo. Ten of the sixteen core ports of the Italian TEN-T network are part of this corridor (Ancona, Augusta, Bari, Gioia Tauro, La Spezia, Livorno, Naples, Palermo, Termini Imerese, Taranto).

In agreement with the interested States, the European Commission periodically carries out a process of consultation with the stakeholders of each Corridor, aimed at the approval of a specific Work Plan containing the state of the art, the degree of achievement of the infrastructural targets required by the reference regulations and all the elements necessary to guarantee an effective integration among the different transport modes, identifying the actions to be undertaken, the timeframe and the necessary financial resources. The Work Plans thus guide the implementation of the Corridors until the goals set are achieved, also through the analysis of the list of related projects, which is the main tool for monitoring progress in the development of the Corridors and, at the same time, planning their completion.

The nine Corridors are complemented by two horizontal priorities aimed at the implementation of the railway signalling and control system (ERTMS) along the European network and the development of the Motorways of the Sea (MOS) for which specific implementation plans are being drawn up with the proactive action of two dedicated European Coordinators.

Italy is an active participant in this exercise, which has led to the identification of just over 500 projects on the four Trans-European Transport Network Corridors affecting the country's territory, **for an estimated infrastructure investment of about EUR 152 billion, with a time horizon mainly up to 2030**. The main national cross-border projects include the Brenner Base Tunnel along the Scandinavian-

Mediterranean Corridor and the new railway line Turin-Lyon along the Mediterranean Corridor.

As a result of the changes related to the UK's exit from the European Union, the European Council and Parliament agreed that the revision of the TEN-T Guidelines should be brought forward to 2021 instead of 2023 as foreseen in EU Regulation 1315/2013. Indeed, the revision of the TEN-T guidelines offers a real opportunity to make the trans-European transport network fit for the future and also achieve the objectives of the European Green Deal. In this perspective, Italy has always expressed its willingness to incorporate into the European network and Corridors the axes considered strategic within the National Transport Infrastructure System in order to eliminate existing gaps. The objective of ensuring full alignment between national planning and European planning of the TEN-T network is part of this context.

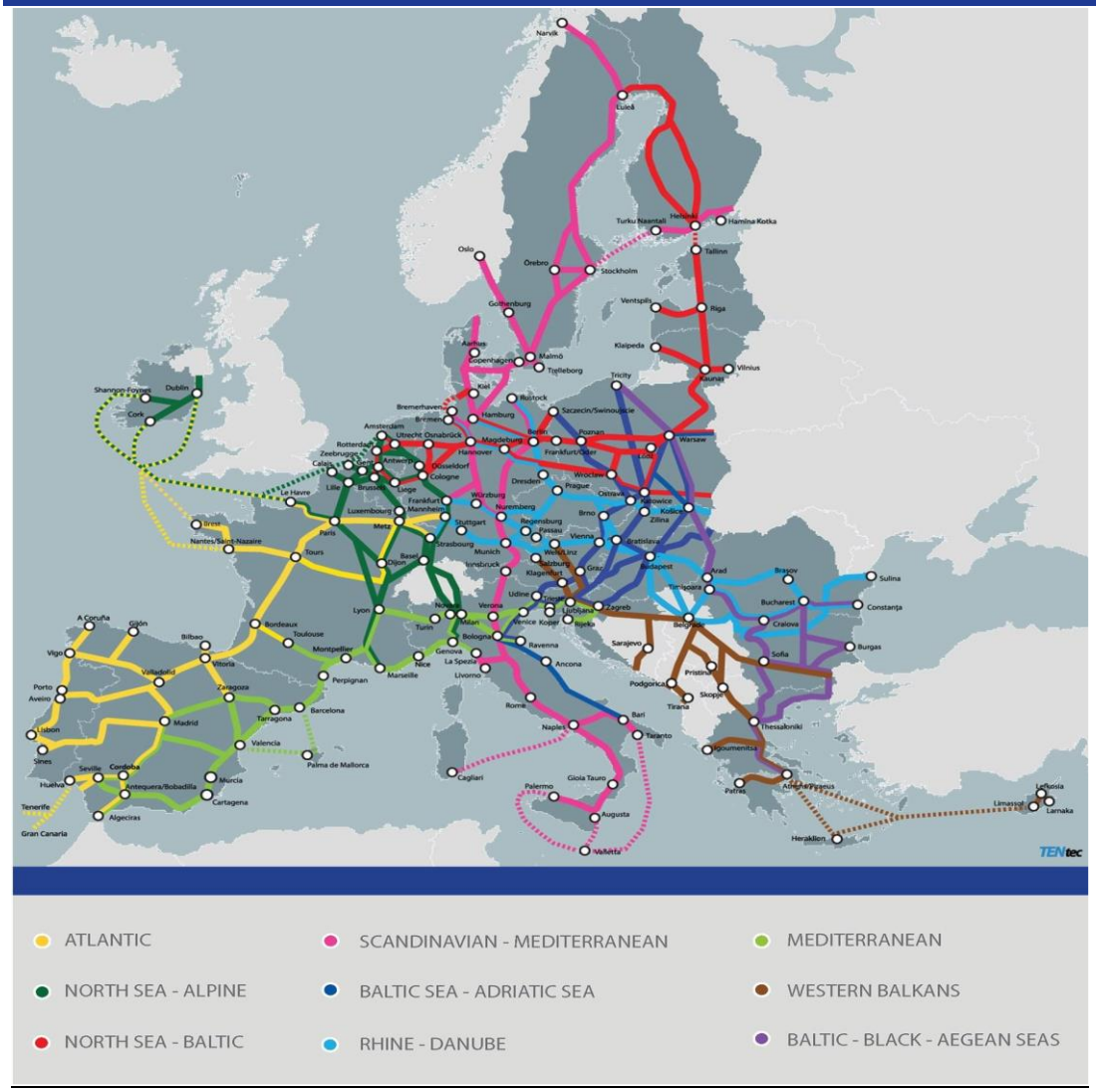
On 14 December 2021, the European Commission presented the legislative proposal for the revision of Regulation 1315/2013 on the TEN-T network guidelines. The new text envisages the gradual development of the TEN-T network in three-time phases: 2030 for the Core Network, 2040 for the so-called extended Core Network and 2050 for the Comprehensive Network, and less stringent constraints on the ports involved in the routes for the conversion of the Motorways of the Sea into a European Maritime Space concept. The proposal also includes updated standards and technical requirements, detailed maps of the new TEN-T networks of both EU and neighbouring countries, as well as maps of the 9 new renamed 'European Transport Corridors' Core Corridors (see Figure I.3 .1.1), which align the routes of the current Core Corridors with those of the Rail Freight Corridors established by EU Regulation 913/2010, foresee several reshaping of the routes of the Core Network Corridors and introduce a new corridor running through the Western Balkan countries and from Cyprus, via Greece, Bulgaria, Croatia and Slovenia, to Austria.

The TEN-T Core Network defined in 2013 remains largely unchanged following the revision process, except for specialisation of lines requested by Italy, with more ambitious infrastructure requirements, especially in the railway sector, to be met by 2030, while the extended Core Network is defined on the basis of a selection of sections of the Comprehensive Network to be developed as a priority in order to achieve the objectives of the TEN-T policy, the completion of which has been brought forward to 2040. Together with the Core Network, the Extended Core Network constitutes the key, multimodal and sustainable transport network and is largely made up of those sections of the Comprehensive Network that have become part of the routes of the new European transport corridors.

It is then reiterated that the infrastructures belonging to the TEN-T network (linear sections or nodes), in addition to enjoying high visibility and being recognised as having high European added value (which also impact on the financial rating), are eligible for Community funding deriving from various European instruments, both non-reimbursable and in the form of loans, with particular reference to those allocated by the Connecting Europe Facility (CEF) instrument; moreover, their operators, in the case of the Core and Extended networks, also participate in the consultative bodies of the European Commission for the development of European Corridors. In this regard, it should be recalled that the revision of Regulation 1315/2013 entails, for the different modes of transport, **the obligation to adapt to certain infrastructure requirements in the time horizons 2030 (for the Core Network), 2040 (for the Extended Core Network) and 2050 (for the**

Comprehensive Network), in order to ensure a substantial improvement in the quality of the transport service offered.

FIGURE I.3.1: NEW PROPOSAL FOR EUROPEAN TRANSPORT CORRIDORS



With regard to the new map of the TEN-T network, the most important priorities for Italy, on which the Commission has expressed a favourable opinion, are **the inclusion of the port of Civitavecchia in the network of Core ports and the completion of the Adriatic backbone**, with the inclusion of the section from Ancona to Foggia in the extended Core network both by rail and road. This inclusion makes it possible to extend the route of the '*Baltic Sea-Adriatic Sea*' Corridor as far as Bari, creating a strategic connection with the '*Scandinavian-Mediterranean*' Corridor to the north through the Bologna node and to the south through the Bari node.

As mentioned, the sections elevated to the rank of extended Core network have been included in the corridor routes; examples include the '*Taranto-Sibari-Paola*'

on the Scandinavian-Mediterranean Corridor, the '*Laveno-Luino'* and '*Alessandria-Novi Ligure'* on the North Sea-Alps Corridor, the '*Vicenza-Treviso-Portogruaro'* and '*Padua-Treviso-Udine-Gorizia-Trieste'* sections on the Mediterranean and Baltic-Adriatic Sea Corridors, respectively.

In addition to **the inclusion of the** missing **part of the Ionian road and railway section in the *Comprehensive* network** - the missing link in the area south of Calabria -, **the acceptance of the proposals for the 'specialisation' *of* the railway lines of the Core network dedicated to passenger and freight traffic**, which have made it possible to define two freight routes along the coastal ridges and two passenger routes, one along the central axis and one along the Adriatic line, are a particularly significant result. In addition, **a series of technical and functional proposals for all modes of transport**, complementary to the priorities above, **have been accepted in** the proposal under negotiation, such as:

- the inclusion of the Passante di Mestre in the Core road network
- the inclusion of the railway section '*Taranto-Brindisi*' and the two cross-border railway sections '*Fossano-Cuneo-Ventimiglia*' and '*Bressanone (Bolzano)-Villach-Klagenfurt*' in the Comprehensive Network;
- Stefano and Procida), three airports (Elba Island, Perugia and Rimini), and the renaming of the Busto Arsizio-Gallarate (VA) terminal.

While almost all the nodes of the network have been retained, with the sole exception of the exclusion of the Brescia and Forlì airports, **the Commission has expanded the network of urban nodes** (now consisting of nine main urban nodes) to **include 40 Italian urban centres with more than 100,000 inhabitants or regional capitals** with even smaller demographic characteristics in order to ensure full territorial cohesion also through appropriate rail/road connections.

FIGURE I.3.1.2: NEW TEN-T CORE NETWORK PROPOSAL; EXTENDED CORE AND COMPREHENSIVE RAILWAY NETWORK FREIGHT, PORTS, ROAD RAIL TERMINALS (DECEMBER 2021)

FIGURE I.3.1.3: NEW PROPOSED TEN-T CORE NETWORK; EXTENDED CORE AND COMPREHENSIVE PASSENGER RAIL AND AIRPORTS NETWORK (DECEMBER 2021)

FIGURE I.3.1.4: NEW PROPOSED TEN-T CORE NETWORK; EXTENDED CORE AND COMPREHENSIVE ROAD, PORTS, RAIL ROAD TERMINALS AND AIRPORTS (DECEMBER 2021)

FIGURE I.3.1.5: NEW TEN-T CORE NETWORK PROPOSAL; EXTENDED CORE AND COMPREHENSIVE INLAND NAVIGATION, PORTS (DECEMBER 2021)

New measures and requirements were introduced for all modes of transport, as was the extension of some infrastructure requirements of the Core Network also to the Comprehensive Network by 2050**. Some new ambitious targets for the rail sector the Core Network** are particularly noteworthy, such as the gauge adjustment (P400) and a passenger speed of at least 160 km/h. Also worth mentioning are a market study for multimodal terminals within two years after adoption of the proposal, the adoption of Sustainable Urban Mobility Plan for urban nodes by 2025, a maximum distance requirement for rest areas in the road sector – which is quite challenging -, multimodal connections and the availability of alternative fuels throughout the network.

In addition, the proposal envisages the **conversion of the Motorways of the Sea into the concept of a European Maritime Space** with less stringent constraints on ports in terms of identifying possible routes, with particular emphasis on short sea shipping links. Finally, as far as cross-border sections are concerned, **the access routes to the Brenner Pass, the Turin-Lyon, as well as the Venice-Trieste** (adaptation of the existing one) **have been realigned and characterised** by speeds in the order of 200 km/h or higher, as part of the Core network.

THE NEW 2021-2027 CONNECTING EUROPE FACILITY (CEF)

As far as the 2014-2020 CEF Programme is concerned, the project portfolio already approved by the European Commission and regulated by grant contracts in which Italian beneficiaries are present - in various capacities - consists of 119 interventions, with a granted contribution of **about EUR 1.7 billion for a total expected investment of about EUR 4.5 billion**, including grants for the cross-border sections of the Brenner Base Tunnel and the new Turin-Lyon Line.

On 7 July 2021, **the new Connecting Europe Facility (CEF 2.0) Regulation No. 1153/2021 - worth EUR 33.71 billion - came into force to finance the development of sustainable, high-performance infrastructure in the transport, digital and energy sectors**. This second edition of the Programme, envisaged from 2021 to 2027, provides for the following sectoral budgets: transport is to receive EUR 25.81 billion (of which EUR 12.85 billion for the cohesion countries alone and EUR 1.69 billion for both civil and military purposes for the dual use of the same network - military mobility), energy is to receive EUR 5.84 billion, and digital is to receive EUR 2.07 billion.

In the field of transport, CEF 2.0 promotes interconnected and multimodal networks in order to develop and modernise rail, road, inland waterway and maritime infrastructures and ensure safe mobility. **Priority is given to completing the Trans-European Transport Networks (TEN-T)**, focusing on missing links and cross-border projects with added value for the EU. Therefore, of the EUR 11.27 billion for the transport sector, **60% will be allocated to infrastructure solutions** (the rest will to so-called smart measures)**, and of this, 85% will be allocated to the Central and Central-Eastern networks**.

The new CEF also emphasises **the importance of synergies among the transport, energy and digital sectors** as a way to make EU action more effective and minimise implementation costs. It also promotes cross-sectoral synergy policies such as **connected and automated mobility and the adoption of alternative fuels**.

It also aims at complementing climate action, taking into account long-term EU decarbonisation undertakings such as the Paris Agreement.

In addition, Summer 2021 saw the approval of **the Programme for the first three annual calls until 2023 with a budget of** EUR **7 billion**, targeting infrastructure projects on the Central and Global TEN-T, smart applications and innovative solutions for transport, infrastructure safety and sustainability, alternative fuel infrastructure and military mobility. Currently, among the 34 potential proposals submitted to the EU for the first CEF Call for Proposals requesting some EUR 386 million in co-funding for approximately EUR 664 million in investment, are four projects on the rail access routes to cross-border sections for just under EUR 150 million in co-funding. Other proposals include two interventions on the on-board ERTMS system, seven interventions on ports and inland waterways, six projects for rail-road terminals, six proposals for telematics applications (e.g., ITS, digital platforms, VTMIS), three proposals for interventions on resilience in airport systems and Single Sky, two for military mobility, two for the adoption of alternative fuels and two proposals for the creation of safe parking areas.

The results of the evaluation of the submitted proposals will probably be made known by the European Commission by the end of the first half of 2022, with two calls of equal size for similar initiatives planned in the second half of 2022 and in 2023.

THE 2014-2020 INFRASTRUCTURE AND NETWORKS NOP

Cohesion policy is the European Union's main investment policy aimed at supporting economic growth, job creation, business competitiveness, sustainable development and environmental protection. The EU regulatory framework defining the objectives and financial instruments of intervention for the 2014-2020 Programming cycle is set out, as known, in Council Regulation (EU) No. 1303/2013 of 17 December 2013 laying down common provisions on the European Structural and Investment Funds. For the purposes of cohesion policy, in addition to Community resources, resources from national co-financing, placed from the Revolving Fund for the implementation of Community policies, must be considered for the principle of additionality. The **ERDF supports the development of transport and infrastructure through Thematic Objective 7 '*Promoting sustainable transport and improving network infrastructures*'** and, as specified below, also through the Thematic Objective '*Promoting overcoming the effects of the crisis in the context of the COVID-19 pandemic and preparing for a green, digital and resilient recovery of the economy*'.

As far as the implementation of cohesion policy is concerned, the **MIMS is directly involved in the management of EU resources earmarked for the infrastructural development of the country**, as Managing Authority of the 2014-2020 Infrastructure and Networks National Operational Programme (2014-2020 I&R NOP). The I&R NOP pursues the priorities of the European Union in the field of transport infrastructure, contributing to the improvement of mobility conditions for people and goods and is aimed at ensuring a competitive development of the less developed areas and regions of Southern Italy and at strengthening economic, social and geographical cohesion.

TABLE I.3.1.1: 2014/2020 'INFRASTRUCTURES AND NETWORKS' NATIONAL OPERATIONAL PROGRAMME (NOP)

Financial allocation for the priority axis based on the operational programme			Cumulative data on the financial performance of the operational programme							
Priority Axis	Fund	Total Budget (in EUR)	Total eligible cost of selected operations (in EUR)	Share of total budget covered by selected operations (%)	Payments made by beneficiaries	Percentage of financial progress (%)	Amount certified to the European Commission as at 31 December 2021	Refund applications being processed to be certified as at 31 July 2022	Cumulative certification forecast to the EC as at 31 July 2022	Percentage of total certified progress on allocation (%)
I	ERDF + RF	1,042,500,176.00	1,043,145,346.86	99.83%	873,953,192.09	83.83%	643,448,856.68	91,169,534.38	734,618,391.06	70.47%
II	ERDF + RF	470,396,505.00	476,724,796.74	101.35%	210,481,551.65	44.75%	144,692,918.91	49,142,783.84	193,835,702.75	41.21%
III	ERDF + RF	51,533,333.00	39,010,126.44	75.70%	22,026,237.30	42.74%	12,144,594.09	0	12,144,594.09	23.57%
Total	**ERDF**	**1,564,430,014.00**	**1,556,459,477.83**	**99.49%**	**1,106,460,981.04**	**70.73%**	**800,286,369.68**	**140,312,318.22**	**940,598,687.90**	**60.12%**
IV	ERDF REACT-EU	313,000,000.00	297,012,307.47*	94.89%	0.00	0.00%	0.00	0.00	0.00	0.00%
V	ERDF REACT-EU + RF	13,020,000.00	0.00	0.00%	0.00	0.00%				0.00%
Total	ERDF REACT-EU	**326,020,000.00**	**0.00**	**0.00%**	**0.00**	**0.00%**				**0.00%**
Grand total		**1,890,450,014.00**	**1,853,471,785.31**	**98.04%**	**1,106,460,981.04**	**58.53%**	**800,286,369,68**	**140,312,318.22**	**940,598,687.90**	**49.76%**

* Reference is made to the operations admitted for funding by the acknowledgement of the Managing Authority of the NOP, No. 5114 of 14 March 2022

In particular, the NOP is geared towards achieving the following objectives:

- enhancing the railway mode and improving the service in terms of quality and journey time;
- improving the competitiveness of the port and interport system;
- improving modal integration and multi-modal connections in order to achieve maximum regional mobility; optimising air traffic through the strengthening of systems and controls.

In addition, the NOP finances interventions in infrastructure - railway, port, '*last mile*' and *Intelligent Transport System* (ITS) - in the five least developed southern regions.

As already noted, the Programme's scope of intervention has seen an expansion following the adoption of mechanisms aimed at strengthening cohesion policy in response to the effects of the COVID-19 pandemic (COM(2020) 113 final of 13 march 2020). In order to respond to the health and socio-economic imbalances resulting from the spread of COVID-19, the **European Commission launched the *Coronavirus Response Initiative***, within which the amendments to the Structural and Investment Funds Regulations merged into Regulation (EU) No. 460/2020 of 30 March 2020 and Regulation (EU) No. 558/2020 of 23 April 2020. With these amendments, the Commission intended to "*promote investment by mobilising the cash reserves available in the European Structural and Investment Funds to combat the crisis immediately*".

The provisions envisaged by the European Commission appear consistent with the need expressed at European level to support the transport and infrastructure sector and contribute to recovery. Furthermore, in order to avoid a further deterioration of the economy, employment and social cohesion, and to boost a sustainable and resilient recovery of economic activity, **the European Commission considered it appropriate to provide an additional support instrument for Member States**. In particular, on 28 December 2020, Regulation (EU) 2221/2020 - **REACT EU - *Recovery Assistance for Cohesion and the Territories of Europe*** - was published in the Official Journal of the European Union, amending Regulation (EU) No. 1303/2013 and allocating an additional **EUR** 47.5 billion for the Cohesion Policy 2014/2020.

Within this framework, and in full consideration of the aims of REACT EU, of the political priorities of the Union and, in particular, of the objectives of the European Green Deal, with note No. 378 of 9 April 2021, the Italian Minister for the South and Territorial Cohesion notified the European Commission **of the Programming of REACT EU resources within the 2014-2020 I&R NOP in support of measures to reduce losses in the water distribution network of Southern Italy for an amount of approximately EUR 313 million.** These measures are aimed at reducing the *water service divide* between Central-Northern Italy and Southern and Insular Italy and at fostering an efficient management of water resources.

The new total financial endowment of the Programme is **EUR** 1,890 million, of which **EUR** 1,496 million co-financed by the European Regional Development Fund and **EUR** 394 million by the national Rotation Fund. The Programme is subdivided into five Axes; three are thematic, as illustrated below, and two refer to technical-specialist assistance and accompanying interventions in favour of the Managing Authority, the Audit Authority and the Certifying Authority of the Programme:

- **Axis I - Favouring the creation of a single European multimodal transport space with investments in TEN-T**, through the strengthening of the railway mode at national level and the improvement of the service in terms of quality and journey times, and the optimisation of air traffic. In particular, Axis I is designed to help improve connectivity within Southern Italy and to make more efficient use of existing infrastructure.
- **Axis II - Developing and improving environmentally sustainable and low-carbon transport systems**, including inland waterways and maritime transport, ports, multimodal links and airport infrastructures, in order to promote sustainable regional and local mobility, by improving the competitiveness of the port and interport system, and regional mobility, modal integration and improved multimodal links. The objective of increasing port and inter-port capacity is to decongest and increase traffic in the southern infrastructure nodes. More generally, the interventions foreseen within Axis II aim at making collective mobility more sustainable through efficient multimodal connections between the logistic nodes in a unicum constituted by the Italian goods handling system. Axis II also aims at promoting the implementation and deployment of intelligent transport systems (ITS). ITSs play a decisive role in meeting the challenges of the ever-increasing demand for mobility. Based on the interaction between information technology and telecommunications, they make it possible to transform transport into an integrated system, in which traffic flows (both passengers and goods) are distributed in a balanced way among the various modes, for greater efficiency, productivity and, above all, transport safety. In particular, the I&R NOP focuses its action on the financing of interventions aimed at promoting the optimisation of air traffic under Axis I and the Single Window and Infomobility under Axis II.
- **Axis IV - Reducing losses in water distribution networks, also through the digitalisation and monitoring of networks.** With specific reference to this Axis, in December 2021 the deadlines for the submission of project applications closed in response to the expression of interest that intends to commit the entire financial amount available for infrastructure investments, i.e., EUR 313 million.

For the sake of completeness, reference should be made to the European Commission's Implementing Decision C(2021)8271 of 23 November 2021, by which the funding tranche under REACT-EU for the year 2022 was defined. The abovementioned Commission Decision was followed by a specific communication of the Presidency of the Italian Council of Ministers - Department for Cohesion Policy of February 2022, which formalised the allocation of the new resources envisaged for the NOP.
As a result, the Programme was allocated an additional EUR 344 million, broken down as follows:

- EUR 169 million for the extension of the scope of financing of operations aimed at reducing losses under Axis IV – '*Reducing losses in water distribution networks, also through the digitalisation and monitoring of networks*';
- EUR 175 million for the purchase of eco-friendly buses for extra-urban and suburban Local Public Transport in the regions of Basilicata, Calabria, Campania, Apulia and Sicily.

Consequently, the necessary steps have been initiated for the swift completion of the NOP reprogramming procedure in order to include the new Axis VI '*Strengthening regional mobility for a green, digital and resilient recovery*', as well as the updating of the Axis IV allocation, as indicated above. From a financial point of view, a total amount of EUR 166 million was certified to the European Commission in 2021, fully reimbursed to the Programme beneficiaries, and the threshold of EUR

639 million of EU funds, required by the European Commission for the achievement of the target set for the year 2021, was exceeded. This confirms the virtuous path taken by the NOP, which has exceeded the challenging expenditure target for 2021, reaching the total certified amount (ERDF and RF) of more than EUR 800 million, against the Programme allocation of EUR 1,890 million.

THE 2014-2020 ACTION AND COHESION PROGRAMME

A further tool to ensure the competitive development of the less developed regions of southern Italy is the Action and Cohesion Programme (PAC 2014-2020), which is complementary to the 2014-2020 Infrastructure and Networks NOP and was approved by CIPE Resolution No. 58 of 1 December 2016 for the regions of Basilicata, Calabria, Campania, Apulia and Sicily. The Programme has a total financial endowment of EUR 670 million, as drawn from the Revolving Fund under Italian Law No. 183/87. It contributes to the achievement of the Europe 2020 objectives through actions and interventions referable to the *'Improving access to and use and quality of information and communication technologies'* and *'Promoting sustainable transport systems'* Objectives of the Partnership Agreement.

In particular, the 2014-2020 PAC pursues the environmental sustainability of the port areas of the regions concerned, the improvement of the accessibility of tourist areas - giving priority to assets outside the major flows - and the improvement of the overall efficiency of integrated logistics, through the use of high-tech solutions. The overall governance of the Programme, as indicated in Annex A to Opinion No. 214/CSR of 10 November 2016 of the State-Regions Conference, provides for the involvement of the beneficiary regions, which are represented at the permanent Table for the governance of the Programme, intended as a political forum for sharing the projects to be financed.

TABLE I.3.1.2: 2014-2020 ACTION AND COHESION PROGRAMME (PAC)

ELIGIBLE AND FUNDED PROJECTS									ELIGIBLE BUT NOT FUNDED PROJECTS	
AXIS	1st ranking			Scrolling			Total		Overall financial requirements	
	Provision	Projects	Amounts	Provision	Projects	Amounts	Projects	Amounts	Projects	Amounts
A 'Logistics Digitisation'	DD No. 6288 of 14 April 2021	4	21,676,973.34				4	21,676,973.34		
B 'Waterfront Restoration'	DD No. 9270 of 25 May 2021	8	53,103,193.31	DD No. 23165 of 28 December 2021	9	168,557,571.58	17	221,660,764.89	9	60,472,134.74
C 'Tourist Accessibility'	DD No. 9269 of 25 May 2021	28	78,815,942.43	DD No. 23166 of 28 December 2021	13	100,824,321.16	41	179,640,263.59	30	140,250,417.83
D "Green Ports"	DD No. 6254 of 14 April 2021	9	44,415,632.18				9	44,415,632.18		
Total		49	198,011,741.26		22	269,381,892.74	71	467,393,634.00	39	200,722,552.57

Following the publication of four Calls for Expressions of Interest for a total amount of about EUR 480 million, as promoted by the MIMS with the involvement of the Regions through special rankings published on the Programme website, **2021 saw the selection of 71 projects concerning the areas of digital logistics, the recovery and enhancement of urban waterfronts, tourist accessibility and environmental sustainability of the ports of the Programme beneficiary territories and their admission for funding for an amount of EUR 467 million.** The results were shared with the Programme's beneficiary Regions, which, limited to consistency with local strategies, took part in the application evaluation process. The financing of the interventions was also defined following a procedure for the scrolling of the final rankings, which took into consideration the demand for financing coming from the regions and the level of synergy and consistency of the Programme's lines of action with the areas of the PNRR falling under the Ministry's responsibility (in particular, investments for the sustainable development of ports and logistics, interventions for the digitisation of roads for tourism purposes, the development of cycling and the renewal of rolling stock). A total of 22 projects concerning interventions under Axis B '*Waterfront rehabilitation*' and Axis C '*Tourist accessibility*' were financed.

The Programme's implementation framework is completed by the presence of a **limited number of railway and** *port infrastructure projects*, under Axis E '*Railway and port infrastructure projects*', which have the characteristic of being consistent with the aims of the 2014-20 PAC and of having been selected within the framework of previous Programming, as financed for about EUR 137 million.

In the second part of 2021, the Programme was considerably accelerated from an operational point of view. Thanks in part to the fruitful cooperation with the numerous beneficiaries involved, the activity of conventioning the interventions admitted to financing continued, and, for the more mature projects, the interventions were started up, and the implementation phase of the related projects was fully operational. Overall, in **2021, interventions for a total value of about** EUR **390 million were agreed upon**. A further 39 projects worth about EUR 200 million have been positively evaluated and could be financed from further resources.

I.3.2 THE NATIONAL INTEGRATED TRANSPORT SYSTEM

The National Integrated Transport System (SNIT) is the set of infrastructures, both point-to-point and networked, of national and international interest that constitutes the backbone of the Italian passenger and freight transport system. Consistent with the infrastructure planning within the European TEN-T networks and the new infrastructures built in recent years, the 2021 Infrastructure Annex to the DEF updated the SNIT network using specific criteria by transport mode shown in Table I.3.2.1 below.

The SNIT network is made up of the point (nodal) infrastructures represented by the main ports and airports, as well as metropolitan cities, which constitute the poles of attraction/emission for the demand for multimodal mobility of passengers and goods. The network is completed by the linear infrastructures of national and international interest (railways, roads, motorways and cycleways) which enable the demand for medium and long-distance passenger and freight mobility to be expressed throughout the territory.

TABLE I.3.2.1: CRITERIA FOR IDENTIFYING THE SNIT NETWORK

INFRASTRUCTURE		SNIT FIRST LEVEL	SNIT SECOND LEVEL
LINEAR	Railways	SNIT 2001 network (only long-distance routes currently in operation for passengers and/or freight) + TEN-T network (*Core* and *Comprehensive*) + additional last-mile accessibility axes to ports, airports	All other rail routes
	Roads and motorways	National core network, corresponding to the SNIT 2001 motorway network (only axes currently in operation) + TEN-T network (*Core* and *Comprehensive*) + additional accessibility axes to ports, airports, tourist poles and industrial districts.	All remaining state-owned roads
	Cycle routes	Eurovelo network consisting of 16 routes with a total extension of about 80,000 km. National network of cycle routes proposed in the General Plan for Cycling Mobility	
CITY	Metropolitan cities	14 metropolitan cities identified by Italian Law 56/2014	-
POINT	Ports	16 Port System Authorities, which include the 58 Ports of National Importance identified by Italian Legislative Decree 169/2016	-
	Airports	16 strategic airports, already nodes of the TEN-T *Core* network	Remaining 22 infrastructures of national importance identified in the National Airport Plan
	Interports/ logistic platforms	Rail-Road Terminals (RRT) of the TEN-T *Core* Network	Rail-Road Terminals (RRT) of the Global (*Comprehensive*) TEN-T network

THE RAILROADS

The first-level National Integrated Transport System (SNIT) for the national and international railway network was defined in the General Transport and Logistics Plan (PGTL) of 2001 and subsequently updated in the Infrastructure Annex to the DEF of 2021, taking into account the evolution of long-distance traffic (passengers and freight); the functional articulation of the four TEN-T corridors affecting the Italian territory; the needs for connection to the main urban areas of the country; the objectives of connection to ports and airports belonging to the same TEN-T network. **The System includes 48 functional routes, covering about 8,800 km, or 44% of the entire national network.** All the remaining lines, including granted lines (whether isolated or not), form the first-level SNIT, which is mainly oriented towards supporting regional traffic and/or the capillary distribution of freight traffic.

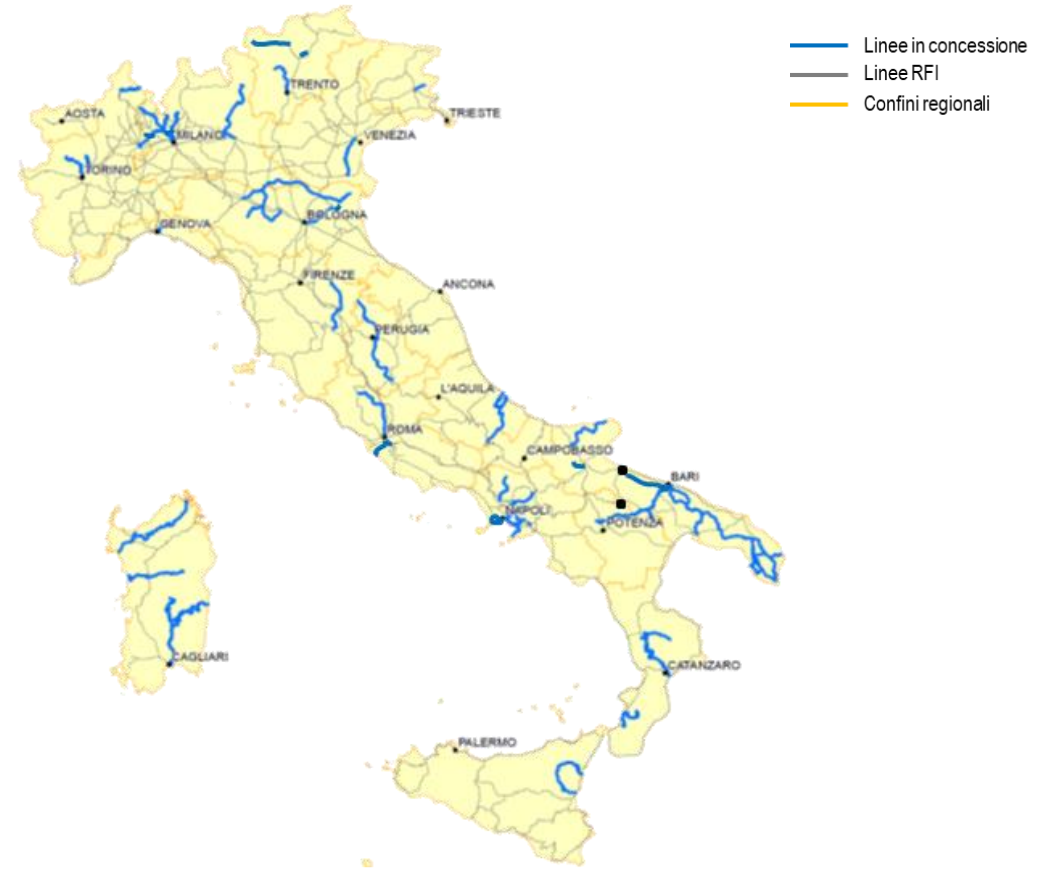
Obviously, the national railway system does not end with the first-level SNIT, which constitutes its backbone, but also includes the networks (partly owned by RFI, partly entrusted to regional managers) and the corresponding local railway services which, although under regional jurisdiction, together constitute an irreplaceable support for modal rebalancing in large urban areas, and also in the large systems of widespread urbanisation that affect a large part of the national territory. In fact, the function of attracting demand and residential decentralisation towards the outer areas in the presence of stable and quality rail services is well known.

FIGURE I.3.2.1: RAILWAY NETWORK OF NATIONAL INTEREST - FIRST AND SECOND LEVEL SNITS

Source: STM of the MIMS.

Regional railways under concession have approximately 3,600 km worth of lines (the national rail network managed by RFI is approximately 17,000 km), as operated by 20 regional infrastructure managers, some of which also act as rail transport managers. The regulatory framework of interest for regional railways, which see a direct involvement of RFI, is dictated by Article 47 of Italian Decree-Law No. 50 of 24 April 2017, converted into Italian Law No. 96 of 21 June 2017, whereby regions and regional managers are allowed to sign agreements with RFI to allow it to carry out interventions for upgrading, modernising and securing the line, as well as to take over the management of the infrastructure with the possibility of transferring the ownership of the railway asset to RFI. In addition to this legislation, two decree-laws were issued: Italian Decree Law 162/2019 (*Milleproroghe*) converted by Italian Law No. 8/2020 and Italian Decree Law 34/2020 (*Rilancio*), converted by Italian Law No. 77/2020, which qualified, respectively, the new Bari-Bitritto line and the Rosarno-San Ferdinando railway link and the related facility as National Railway Infrastructure.

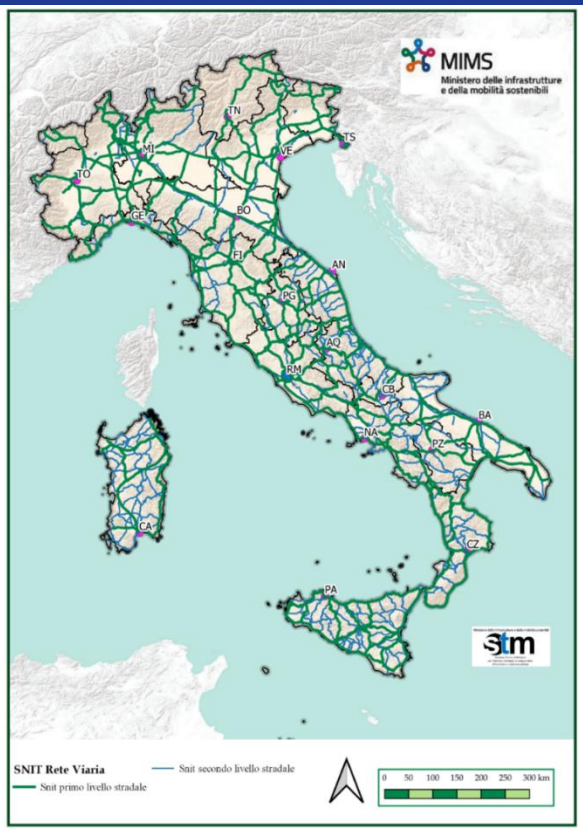
FIGURE I.3.2.2: REGIONAL RAILWAYS UNDER CONCESSION



ROADS AND MOTORWAYS

The national **and international** road and motorway network **extends over approximately 30,600 km** (national road and motorway network) and includes 13 Alpine passes. The first-level SNIT sub-network of this network has been defined, which extends approximately 15,300 km. This sub-network was supplemented by the European TEN-T '*Core*' and '*Comprehensive*' routes that were not present in the first-level SNIT as defined in the 2001 PGTL, as well as updated with additional road axes of relevant interest, which have been constructed over the last 15 years. The Italian road network is completed by the networks of regional and provincial roads, which together constitute an irreplaceable tool for multimodal access to the SNIT itself.

FIGURE I.3.2.3: FIRST LEVEL SNIT ROAD NETWORK



Source: STM of the MIMS.

CYCLE ROUTES

Cycling infrastructure plays an important role in the development of sustainable mobility. Two, in particular, are the priorities of cycling development policies on which infrastructure investments are being redesigned and redefined, according to the General Plan for Cycling Mobility. The first concerns **bicycle connections between regions, along national and international routes**, where the increase in bicycle flows is linked to positive effects in terms of landscape conservation and recovery and tourism development, improving accessibility to the region. The second one concerns **urban areas**, where it is being proved that the implementation of a network of safe routes connecting neighbourhoods and intermodal nodes (Biciplan, to be framed within the framework of the PUMS) allows to achieve significant shares of modal diversion.

At the European level, the '*Eurovelo*' project, promoted by ECF - *European Cyclists*' Federation, aims at developing a transnational network of cycle routes, which has been included within the European TEN-T (*Trans-European Transport Network*) since 2012, opening up the possibility of access to the resources that the European Commission makes available for the completion of this strategic network. The Eurovelo network (Figure I.3.2.4), consists of 16 routes, each with an extension of more than 1,000 km, for a total extension of about 80,000 km.

Two fundamental steps have been taken for the development of cycling mobility and the network of national cycle routes: the identification in 2017 of the 10 cycle routes belonging to the National System of Cycle Routes (SNTC) and the approval of Law No. 2 of 11 January 2018 on the development of cycling mobility, which redefines the national system (SNCT) as the Bicitalia National Cycle Network (*Rete Ciclabile Nazionale Bicitalia*, RCN), considering it an Italian integration of the Eurovelo network.

FIGURE I.3.2.4: EUROVELO NETWORK

Source: EuroVelo.

PORTS

Consistent with the provisions of Italian Legislative Decree No. 169 of 4 August 2016 'Reorganisation, rationalisation and simplification of the regulations concerning the Port Authorities referred to in Italian Law No. 84 of 28 January 1994, in implementation of Article 8, paragraph 1, letter f), of Italian Law No. 124 of 7

August 2015' and Italian Legislative Decree No. 232 ('Corrective Ports'), which amended Italian Law No. 84 of 28 January 1994, and in adherence with respect to the updating of the new National Integrated Transport System (SNIT) that took place in 2017, **the 16 Port System Authorities, which in turn include ports of significant international and national economic interest, constitute the first-level nodes of the SNIT of the port sector**.

The national port system does not end with the first-level SNIT and the 58 national and international ports that make up its backbone, but also includes the category I seaports referred to in Article 4 of Italian Law 84/1994 (i.e., ports and specific port areas aimed at military defence and State security), as well as 217 additional minor ports of call mainly dedicated to pleasure boating, fishing activities and the transport of local passengers and tourists.

FIGURE I.3.2.5: CURRENT SITUATION RAILWAY CONNECTIONS ITALIAN PORTS

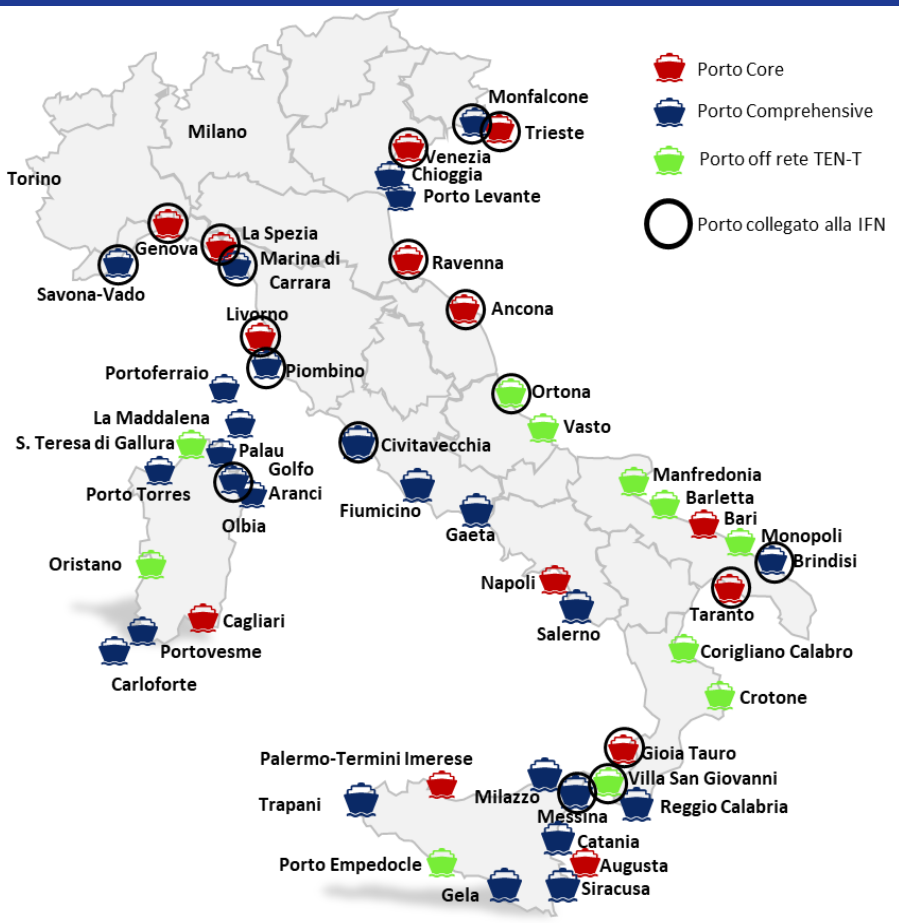


TABLE I.3.2.2: FIRST LEVEL ASDP SNIT LIST

1. **AdSP of the Western Ligurian Sea**

   Ports of Genoa, Savona and Vado Ligure

2. **AdSP of the Eastern Ligurian Sea**

   Ports of La Spezia and Marina di Carrara

3. **AdSP of the Northern Tyrrhenian Sea**

   Ports of Livorno, Piombino, Portoferraio, Rio Marina, Cavo and Capraia

4. **AdSP of the Central-Northern Tyrrhenian Sea**

   Ports of Civitavecchia, Fiumicino and Gaeta

5. **AdSP of the Central Tyrrhenian Sea**

   Ports of Naples, Salerno and Castellamare di Stabia

6. **AdSP of the Southern Tyrrhenian and Ionian Seas**

   Ports of Gioia Tauro, Crotone (old and new port), Corigliano Calabro, Taureana di Palmi and Vibo Valencia

7. **AdSP of the Ionian Sea**

   Port of Taranto

8. **AdSP of the Straits**

   Ports of Messina, Milazzo, Tremestieri, Villa San Giovanni and Reggio Calabria

9. **AdSP of the Sardinian Sea**

   Ports of Cagliari, Foxi-Sarroch, Olbia, Porto Torres, Golfo Aranci, Oristano, Portoscuso-Portovesme and Santa Teresa di Gallura (commercial quay only)

10. **AdSP of the Western Sicilian Sea**

    Ports of Palermo, Termini Imerese, Porto Empedocle and Trapani

11. **AdSP of the Eastern Sicily Sea**

    Ports of Augusta and Catania

12. **AdSP of the Southern Adriatic Sea**

    Ports of Bari, Brindisi, Manfredonia, Barletta and Monopoli

13. **AdSP of the Central Adriatic Sea**

    Ports of Ancona, Falconara, Pescara, Pesaro, San Benedetto del Tronto (excluding tourist dock) and Ortona

14. **AdSP of the Northern Central Adriatic Sea**

    Port of Ravenna

15. **AdSP of the Northern Adriatic Sea**

    Ports of Venice and Chioggia

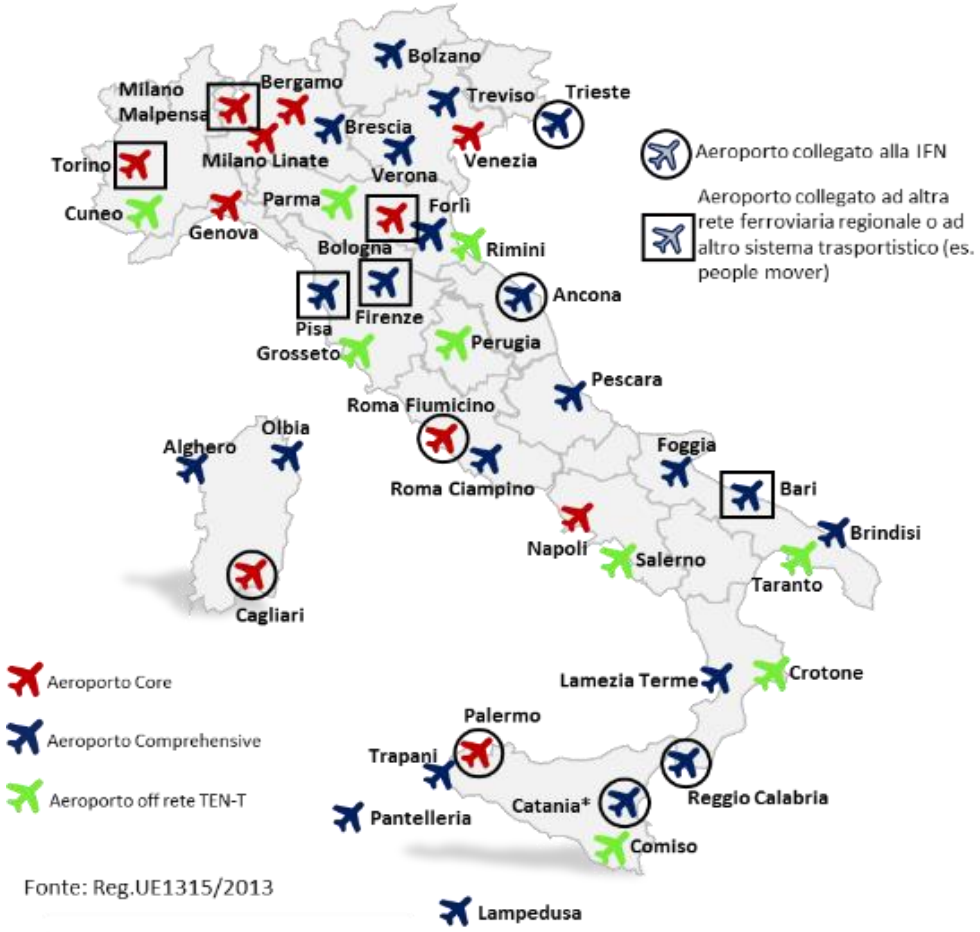
16. **AdSP of the Eastern Adriatic Sea**

    Ports of Trieste and Monfalcone

AIRPORTS

At the airport level, the new guidelines of the TEN-T Network and the criteria included in the National Airport Plan were integrated starting from the SNIT, especially in relation to the geographical coverage of the airport system, even independently of the 'Core' network. As a result, the airports of Pisa, Florence, Bari, Lamezia Terme and Catania in the 'Comprehensive' network were considered to be of national importance and thus of first level, while the airports of Cuneo, Parma, Rimini, Perugia, Salerno, Taranto and Crotone, although not included in the TEN-T network, were classified as second level. Thus, **the SNIT contains 38 airport facilities, of which 16 belong to the first-level network.**

FIGURE I.3.2.5: CURRENT SITUATION RAILWAY CONNECTIONS WITH ITALIAN PORTS



Fonte: Reg.UE1315/2013

**Il 13 marzo 2021 è stata inaugurata la fermata di Catania Aeroporto Fontanarossa che ha una configurazione provvisoria. Diventerà vera e propria stazione con ulteriori investimenti già finanziati.*

42 = **11** + **22** + **9**

Totale aeroporti = Aeroporto Core + Aeroporto Comprehensive + Aeroporto Off Rete TEN-T

n° aeroporti/mln abitanti = 0,55

TABLE I. 3.2.3: DEFINITION OF THE FIRST AND SECOND LEVEL SNIT AEROPORT NETWORK

SNIT LEVEL	AIRPORTS
First level (16 airports)	Rome Fiumicino, Milan Malpensa, Bergamo Orio al serio, Milan Linate, Venice, Catania, Bologna, Naples, Palermo, Pisa, Bari, Turin, Cagliari, Lamezia Terme, Florence, Genoa
Second level (22 airports)	Rome Ciampino, Verona, Treviso, Olbia, Brindisi, Trapani, Alghero, Trieste, Pescara, Reggio Calabria, Ancona, Crotone, Lampedusa, Perugia, Parma, Cuneo, Brescia, Salerno, Comiso, Pantelleria, Rimini, Taranto

FREIGHT VILLAGES AND LOGISTICS PLATFORMS

With regard to freight villages and logistic platforms of national importance whose presence on the Italian territory allows for the promotion and development of intermodal transport and logistics, the first level SNIT includes the multimodal terminals (*Rail-Road Terminals*, RRTs) belonging to the European Core TEN-T network, while the second level SNIT includes the multimodal terminals belonging to the Comprehensive TEN-T network. Specifically, according to current regulations, a multimodal terminal fits into the Comprehensive network if it meets one of the following criteria:

- It grants free access to any logistic operator and meets the requirement of an annual transhipment of 'non-bulk' cargo exceeding 800,000 tonnes, i.e., loading operations of 'bulk' cargo exceeding 0.1% of the corresponding total annual cargo volume handled in all EU seaports;
- It is connected to three modes of transport and guarantees free access to any logistic operator or, if a region classified as NUTS 2[2] lacks either a freight terminal or a logistic platform complying with the previous point, the main terminal or logistic platform which guarantees free access to any logistic operator and is connected at least to the road and rail network of the NUTS 2 region (node connected to at least two modes of transport) is identified by the Member State concerned.

In turn, a freight terminal is included in the Core Network if, in addition to meeting one of the above criteria, it meets one of the following criteria:

- It belongs to a 'main urban node'[3];
- It is located at a junction or branch of a Core freight network rail link or is located in the vicinity (same urban node) of a Core maritime or inland waterway port.

The European Commission's proposal for the revision of the regulation, which is currently under discussion, stipulates, in addition to the abovementioned criteria,

[2] The European Union has established a common statistical nomenclature of local units, called 'NUTS', to enable the collection, compilation and dissemination of harmonised regional statistics in the EU. The NUTS classification is hierarchical insofar as it divides each Member State into three levels: NUTS 1, NUTS 2 and NUTS 3. The second and third levels are respectively subdivisions of the first and second level. For Italy, the NUTS 2 classification consists of all the regions of Italy and the autonomous provinces of Trento and Bolzano.

[3] The European Union defines 'Main Urban Node' as the capital city of the member state, each 'Metropolitan Area' (MEGA in the ESPON9 Atlas 2006), each conurbation with more than 1 million inhabitants corresponding to a LUZ ('*Larger Urban Zones*', *according to Urban Audit and EUROSTAT*), the main city of an island/archipelago belonging to a NUTS 1 region with at least 1 million inhabitants.

that a multimodal terminal can be included in the comprehensive network if it is proposed by a Member State on the basis of market analyses[4] and an action plan for the development of a network of multimodal freight terminals.

FIGURE I.3.2.7: NEW EUROPEAN TEN-T NETWORK PROPOSAL FOR CORE (FIRST LEVEL) AND COMPREHENSIVE (SECOND LEVEL) RAIL-ROAD TERMINALS (RRTS)

[4] More details on the analyses can be found in the proposed revision of the regulation.

TABLE I.3.2.4: DEFINITION OF THE FIRST AND SECOND LEVEL SNIT INTERPORT NETWORK (based on the new proposed revision of the TEN-T network not yet adopted)

SNIT LEVEL	INTERPORTS/LOGISTICS PLATFORMS
First level (TEN-T Core Network)	Torino Orbassano, Novara and Agognate (NO), Verona, Padua, Cervignano del Friuli (UD), , Vado Ligure (SV), Bologna, Prato, Livorno, Jesi (AN), Marcianise (CE), Nola (NA), Bari, Milano Smistamento, Segrate (MI), Pomezia (RM), Santo Stefano di Magra (SP), Fernetti (TS)
Second level TEN-T Global Network	Rivalta Scrivia (AL), Trento, Portogruaro (VE), Pordenone, Rovigo, Mortara (PV), Parma and Castelguelfo, Orte (VT), Val Pescara (PE), Catania, Busto Arsizio and Gallarate (VA), Brescia, Piacenza, Mantua, Faenza (RA), Forlì-Cesena, Ortona (CH), Incoronata (FG)

I.4 OVERCOMING THE INFRASTRUCTURAL DIFFERENCES BETWEEN DIFFERENT GEOGRAPHICAL AREAS

Article 15 paragraph 1 of Italian Decree-Law No. 121 of 10 September 2021 (converted with amendments by Law No. 156 of 9 November 2021) states: "*1. In order to ensure the recovery of the infrastructural gaps between the different geographical areas of the Italian territory, including infra-regional ones, as well as to guarantee similar essential levels of infrastructures and related services, by 30 November 2021, the Italian Ministry of Infrastructures and Sustainable Mobility, having heard the competent administrations and the technical structures of the Italian Minister for the South and Regional Cohesion, shall carry out, with regard to state infrastructures, a survey of the number and functional classification of health, welfare and education facilities, as well as the number and extent of road, motorway, rail, port, airport and water infrastructures, with an indication of their relevant functional classification. The regions and autonomous provinces of Trento and Bolzano, as well as the local authorities and other competent public and private entities, also availing themselves of the technical-administrative support of the Agency for Regional Cohesion, shall recognise the infrastructures referred to in the first sentence that do not fall within the State's competence. The survey carried out by the local authorities and the other public and private entities shall be transmitted by 30 November 2021 to the regions and the autonomous provinces of Trento and Bolzano, which shall forward it, together with their own, to the Conference of Regions and Autonomous Provinces and to the Agency for Regional Cohesion within the following five days. The latter shall prepare the final survey document to be communicated to the Department for Regional Affairs and Autonomies of the Presidency of the Italian Council of Ministers by 31 December 2021*".

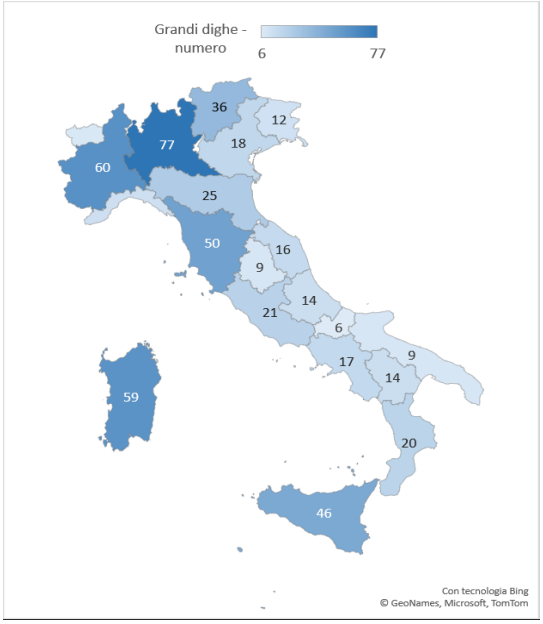
Paragraph 1-bis provides that "At the outcome of the survey referred to in paragraph 1, with a decree of the President of the Italian Council of Ministers, having heard the Italian Ministers for Infrastructure and Sustainable Mobility, for Regional Affairs and Autonomies, for the Economy and Finance, and for the South and Regional Cohesion, after agreement at the Unified Conference referred to in Article 8 of Italian Legislative Decree 281 of 28 August 1997, to be adopted by 31 March 2022, the priority criteria and the actions to be pursued for the recovery of the infrastructural and development gap resulting from the abovementioned survey are established, having regard to the infrastructural shortcomings, also with reference to the performance and quality aspects, existing in each region, with

particular attention to the areas that suffer from greater criticality in the infrastructural connections with the road and rail networks of national character and value of the infrastructural endowment of each region, the extent of the geographical areas and the specific nature of mountainous and inland areas, as well as the regions of Southern Italy, population density and production units, and the competent Ministries and the share of funding with annual allocation are identified, taking into account what is already provided for by the PNRR and the Complementary Plan referred to in Italian Decree-Law No. 59, converted with amendments by Italian Law No. 101 of 1. July 2021, from the resources of the fund referred to in paragraph 1-ter".

Lastly, Paragraph 1-ter provides that 'For the financing of the interventions referred to in Paragraph 1-quater, an 'Infrastructure Equalisation Fund' is established in the budget of the Italian Ministry of the Economy and Finance with a total endowment of EUR 4,600 million for the years from 2022 to 2033, of which EUR 100 million for the year 2022, EUR 300 million annually for each of the years from 2023 to 2027, and EUR 500 million annually for each of the years from 2028 to 2033'. These are the various steps of a complex path which, on the basis of survey evidence in relation to the infrastructure endowment, aims at defining criteria useful for identifying priorities and allocating resources for rebalancing the infrastructure gaps between the areas of the country. **The MIMS, with the support of the Agency for Regional Cohesion, carried out a reconnaissance**[5] of the number and functional classification of the infrastructures belonging to the four sectors involved in the initiative, namely water, education, health, transport.

WATER INFRASTRUCTURE

FIGURE I. 4.1: NUMBER OF LARGE DAMS IN ITALY



Source: Agency for Regional Cohesion elaboration on MIMS 2021 data.

The MIMS has surveyed **530 large dams** in Italy (over 15 m in height and with a volume of more than 15 million cubic metres of water) under state jurisdiction for a total design capacity of over 13,000,000 million m^3. The number of dams is not strictly related to the reservoir capacity: for example, with its 77 dams, Lombardy covers almost one third of the total reservoir capacity of all large dams, with over 4,000 million m^3, while Piedmont, despite boasting a substantial number of dams (60), has a much more limited reservoir capacity (357 million m^3).

For **distribution networks, the data on** network length, which is available only for provincial capitals (about 57 thousand kilometres), is accompanied by data indicative of performance aspects,

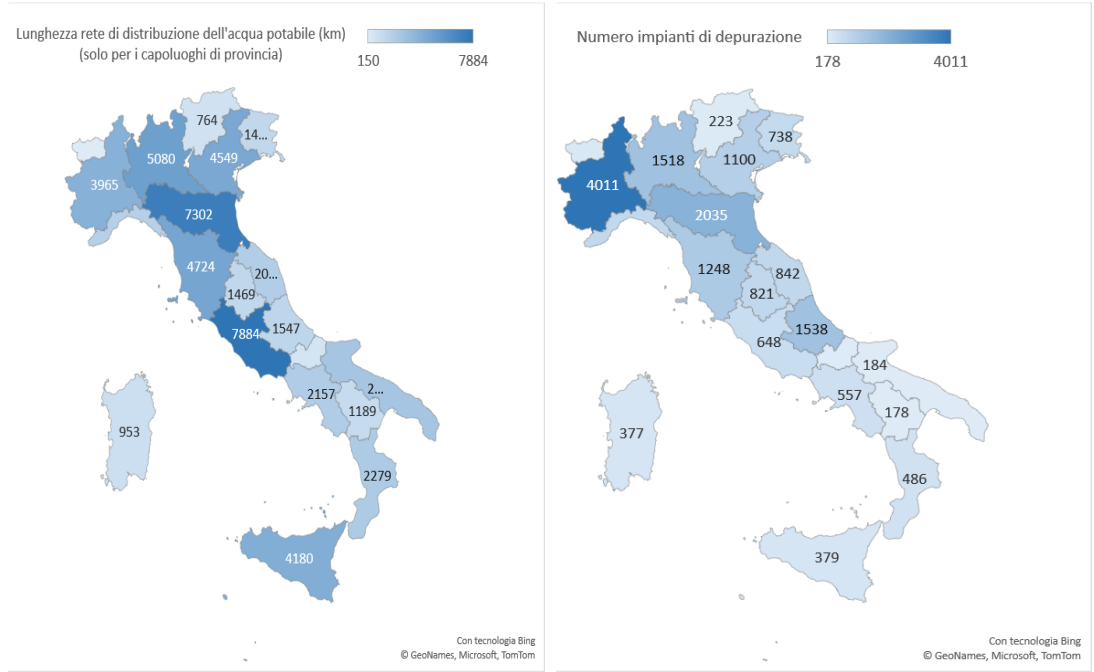
[5] Note No. 20228 of 31 December 2021 sent to the Department for Regional and Autonomous Affairs.

relating to network losses (percentage difference between water injected into the pipelines and consumption invoiced to users), which average around 42%, although with varying intensities. As many as five regions have losses exceeding 50%: Abruzzo (55.6%), Umbria (54.6%), Lazio (53.1%), Sardinia (51.2%) and Sicily (50.5%), while Valle d'Aosta (22.1%), the autonomous province of Bolzano (26.9%) and Lombardy (29.8%) have much lower values.

The survey of water infrastructures also includes data on the overall length of the **sewerage network**, which is not available centrally and is provided by some regions. This is complemented by data on municipalities where sewerage service is still absent; according to ISTAT data, public sewerage service was still absent in 40 municipalities in 2018. Most of the municipalities without the service are in Sicily (25 municipalities), mainly in the province of Catania.

ISTAT surveyed 18,140 **purification plants in** 2018, with a significant concentration of plants in the Centre-North, and particularly high values in Piedmont (over 4,000). Overall, the purification service is also undersized, and there are still many municipalities (339) without this service, for a population of 1.6 million inhabitants. These are mostly small/medium-sized municipalities, most of which are located in the southern regions (Sicily, with 80 municipalities, Calabria, with 51, Campania, with 44), but also in Lombardy, where there are 35 municipalities still without purification plants.

FIGURE I.4.2: DRINKING WATER DISTRIBUTION NETWORK (KM) AND PURIFICATION PLANTS IN ITALY



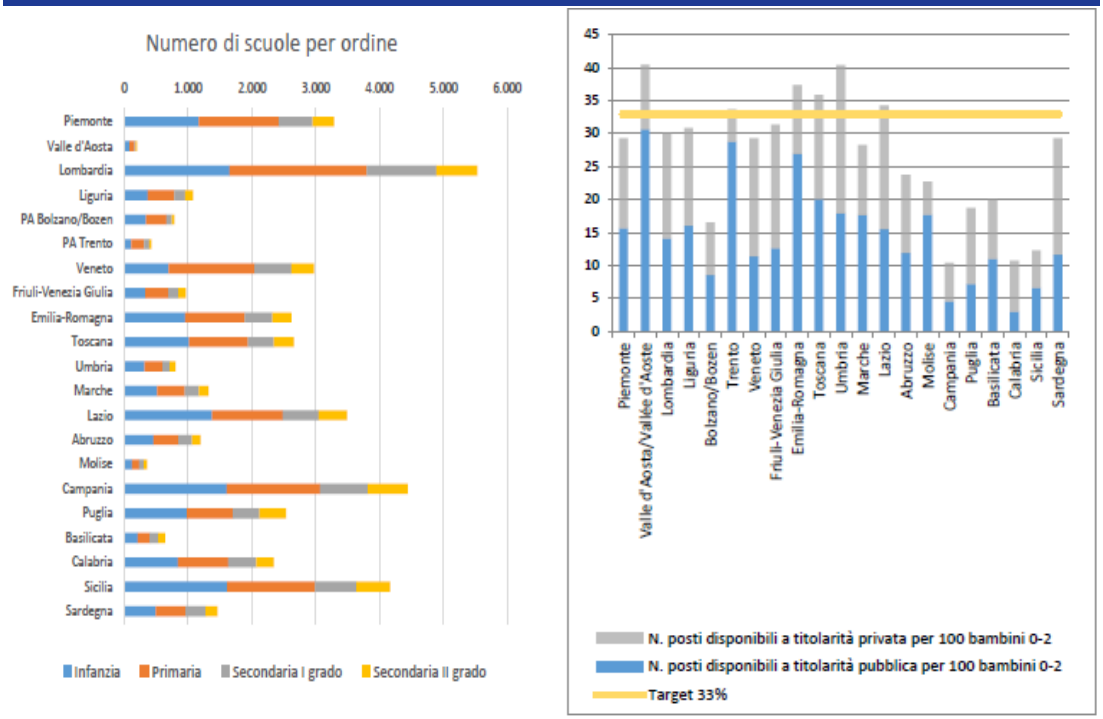
Source: Agency for Regional Cohesion elaboration on ISTAT 2018 data.

EDUCATION SECTOR

In the 2020/2021 school year, the Italian Ministry of Education surveyed 43,265 **public** (state and non-state) **educational institutions**, 71% of which are dedicated to primary and pre-school education. With the exception of Valle d'Aosta and the Autonomous Provinces of Trento and Bolzano, which have been granted full school autonomy and therefore only have non-state schools, the incidence of non-state schools is residual and mainly concerns pre-school education. The distribution of schools by order substantially reflects that of the school population, with the exception of Tuscany and Emilia-Romagna.

An analysis of the supply of **services for early childhood** shows that throughout the country there are 4,857 active service delivery points and 180,842 places, mostly located in the regions of Lombardy and Emilia-Romagna. The southern regions have the lowest number of active places and services. With reference to the availability of places by population segment covered by the service (0-2 years), also considering the availability of privately-owned facilities, the wide gap in terms of service supply between the Centre-North and the South is confirmed, which in many regions has levels of available places below the 33% parameter set by the EU to support the reconciliation of family and work life, promote greater participation of women in the labour market, and offer equal opportunities to children in the first three years of their life.

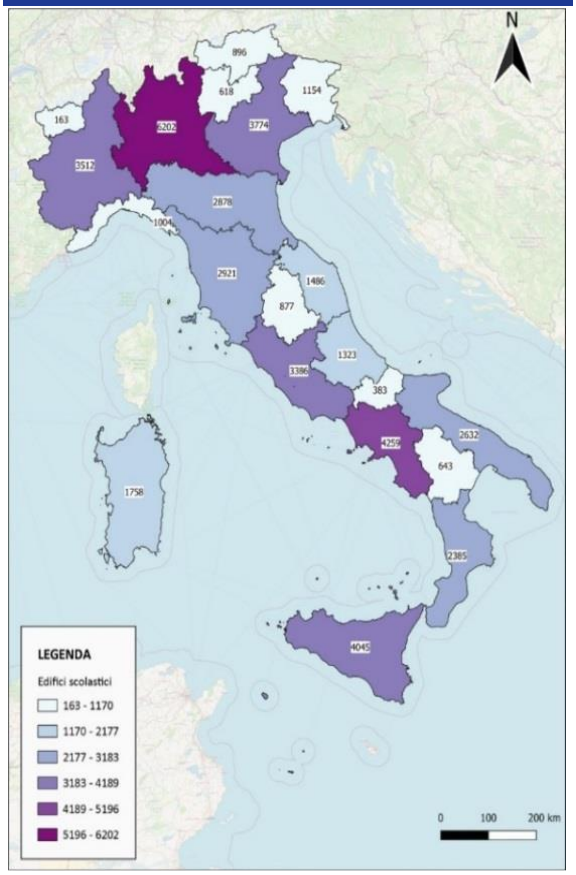
FIGURE I.4.3: REGIONAL DISTRIBUTION OF SCHOOL ORDERS AND AVAILABLE NURSERY PLACES



Source: Agency for Regional Cohesion elaboration on Italian Ministry of Education data.

The national **school building** stock consists of more than 45,000 buildings, housing over 7.4 million students. More than 50% of school buildings were built before the anti-seismic regulations came into force (1976), generally presenting a high structural vulnerability. In the regions of Liguria, Campania and Lazio, the proportion of buildings constructed before 1976 exceeds 70% of the total. Approximately 43% of buildings nationally fall in high-risk seismic zones (1 and 2). 25% of these buildings are concentrated in the southern regions, in particular Sicily, Campania and Calabria, where the highest exposure to seismic events affects more than 90% of buildings. The school building register also confirms that, on the whole, the school building stock is old and has significant deficiencies of various kinds, from earthquake-proofing to the acquisition of a certificate of static suitability, compliance with safety standards, fire prevention and energy efficiency measures.

FIGURE I. 4.4: NUMBER OF SCHOOL BUILDINGS



Source: Agency for Regional Cohesion elaboration on ARES 2021 data.

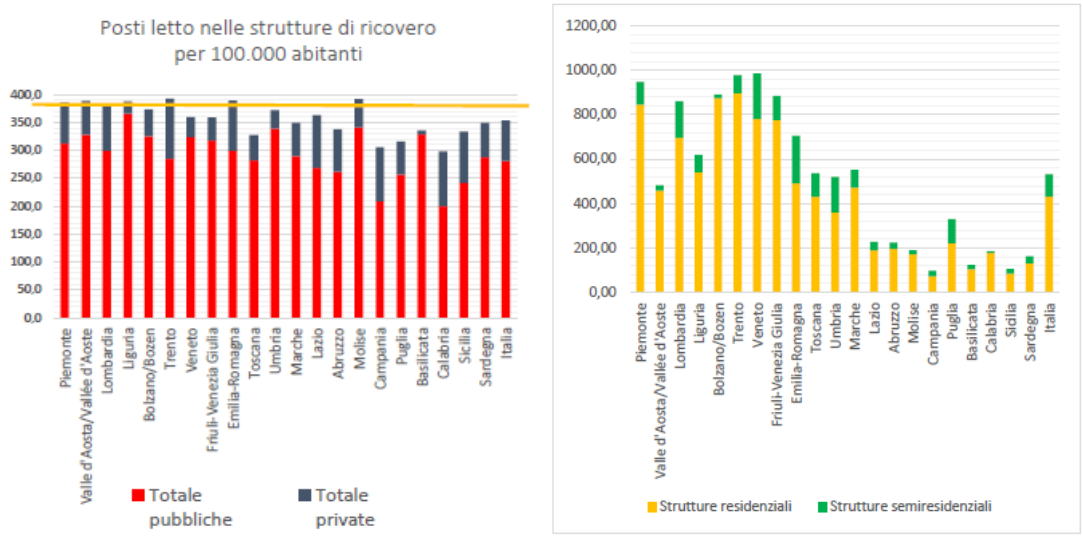
HEALTH INFRASTRUCTURE

According to data from the statistical yearbook of the Italian Ministry of Health, as at 31 December 2019, there were 992 **inpatient facilities** (hospital companies, hospitals, university polyclinics, research bodies, nursing homes, etc.) surveyed on the Italian territory, equally divided between public (52%) and private (48%) facilities. The incidence of public facilities is on average higher in southern Italy and varies between a maximum of 90% in Basilicata and a minimum of 34% in Emilia-Romagna.

With reference to the number of **beds** available in in-patient facilities, in absolute terms, the gap - greater than 80% - between the first (Lombardy, 37,982 beds) and the second-best endowed region (Lazio, 20,883) is particularly significant. Assessing the ratio between the number of places and the resident population, the highest value of 392 beds per 100,000 resident inhabitants is found in the Autonomous Province of Trento, the lowest (297 beds per 100,000 inhabitants) in Calabria. Generally speaking, the gap between the North (377.9 beds per 100,000 inhabitants) and the South (313.3 p beds per 100,000 inhabitants) is quite marked, influenced negatively by the values in Calabria (297 beds) and Campania (305 beds). The figure is particularly significant in relation to the prescription of Decree No. 70

of the Italian Minister for Health of 2 April 2015, and before that of Italian Law No. 135 of 7 August 2012, which stipulated that the Regions should have reduced the number of beds to 3.7 per 1,000 inhabitants by 31 December 2012.

FIGURE I. 4.5: BEDS IN IN-PATIENT FACILITIES AND IN COMMUNITY HEALTH FACILITIES PER 100,000 INHABITANTS



Source: Agency for Regional Cohesion elaboration on NHS Statistical Yearbook data.

With regard to **local healthcare facilities** (outpatient clinics and laboratories, residential and semi-residential facilities, other types of facilities), the gap between the North (12,883) and the South (5,092) is particularly significant. Similarly, a significant gap emerges in terms of the number of beds available in regional facilities, both in absolute terms and in relation to the resident population. The highest number of beds per 100,000 inhabitants is found in Veneto (985), the Autonomous Province of Trento (977), Piedmont (947), the Autonomous Province of Bolzano (889) and Friuli (884), while the lowest is found in Campania (98), Sicily (105), Basilicata (123), Sardinia (162) and Calabria (185). The figure is even more evident if we look at the North-South divide: the beds in semiresidential and residential facilities per capita go from a value of 860 per 100,000 residents in the northern regions to 192 per 100,000 residents in the southern regions, a value more than four times lower.

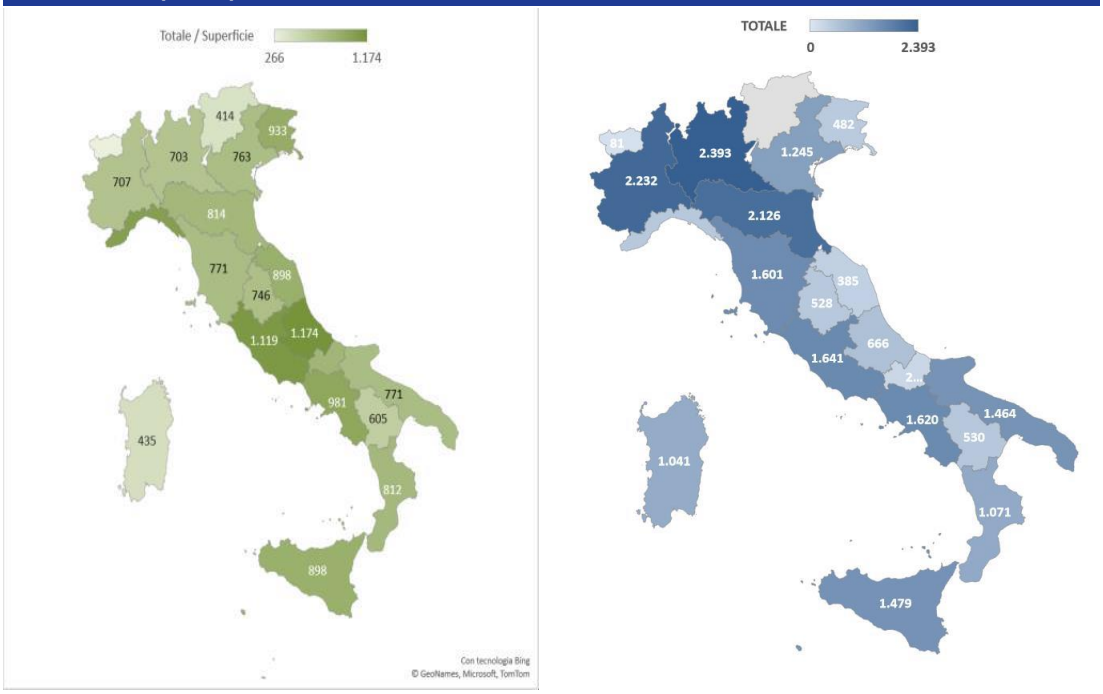
TRANSPORT INFRASTRUCTURE

As far as **road infrastructure** is concerned, according to ASTI-ISTAT data, as at 2019, almost 90% of roads are non-state roads. The value for the total number of road kilometres, if related to the local dimension, shows a rather heterogeneous situation, as the highest values are registered for Liguria, Friuli-Venezia Giulia, Lazio and Abruzzo (with a significant contribution of the municipal network).

Again according to ASTI-ISTAT data, the spread of the railway network sees a greater concentration in the north-eastern regions (Lombardy and Piedmont) and, moving down through Emilia-Romagna, along the Tyrrhenian ridge, in particular Tuscany and Lazio, all the way to Campania. About 40% of the network is single-

track, and of this, almost 85% is non-electrified, with consequent repercussions in terms of safety and pollution. In particular, the regions of southern Italy, with the exception of Campania, which presents data in line with the regions of central and northern Italy, have the highest values both for the non-electrified network (about 43% compared to 23÷24% in the northern and central regions) and the single-track network (almost 70% compared to 52% in the northern and 45% in the central regions).

FIGURE I.4.6: TOTAL LENGTH OF ROADS BY LAND AREA (LEFT) AND RAILWAY EQUIPMENT IN TOTAL NETWORK KM (RIGHT)



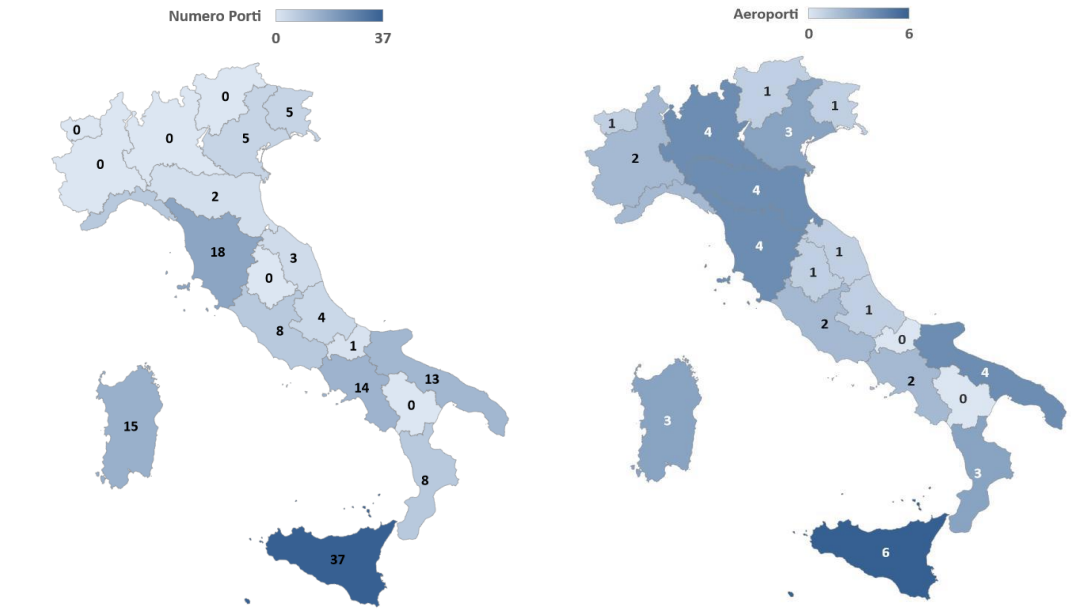
Source: Agency for Regional Cohesion elaboration on ASTI 2019 data.

As far as **port infrastructure** is concerned, 65% of commercial seaports are located in southern regions, but northern regions have the largest number of berths equipped with a connection to the rail network, while in southern regions almost all berths do not. The ports of Northern Italy are mainly focused on freight management: in Friuli-Venezia Giulia, they handle 62.8 mil tons of freight and 4 thousand passengers, in Liguria they handle 69.5 mil tons of freight and 1.6 mil passengers, in Emilia-Romagna they handle almost exclusively freight (27.1 mil tons), and in Veneto about 25.8 mil tons of freight and 47 thousand passengers. In absolute terms, Sicily has the highest values for both goods handled (about 75 million tonnes) and passengers (about 14.5 million). With respect to passengers embarked and disembarked in ports, Sicily is followed by Campania (about 13 mil), Sardinia, Calabria and Tuscany (all with more than 7 mil).

As far as **airport infrastructures** are concerned, over 70% of demand for air transport is concentrated in airports in the Centre-North, particularly in Milan and Rome. Demand for international flights is even more unbalanced, with 85% of flights concentrated in Central-Northern airports (60% between Rome and Milan alone). The airports of southern Italy, on the other hand, account for an important share of

domestic flights (around 46%): in particular, Sicily records the highest number (around 54 thousand aircraft landed and took off) of domestic flights. In 2020, almost 53 million passengers arrived and departed from Italy's 45 airports, of which about 60% were handled by the airports of Lombardy, Lazio and Sicily. Of the 805,000 tonnes of cargo, 73% freight (and mail) is handled by the Lombardy airports. Together with the airports in Lazio, Veneto and Emilia-Romagna, they account for almost all (more than 95%) of the cargo handled at national airports.

FIGURE I.4.7: NUMBER OF PORTS AND AIRPORTS



Source: Agency for Regional Cohesion elaboration on ASTI 2020 data.

I.5 THE EU 'FIT FOR 55' CLIMATE PACKAGE AND MITIGATION AND ADAPTATION POLICIES

With the final approval of the EU Climate Act (Regulation (EU) 2021/1119 of 30 June 2021), the target of a net reduction of greenhouse gas emissions of at least 55% by 2030 compared to 1990 levels became binding. In order to implement this target, 14 July 2021 saw the European Commission present a package of climate, energy, transport and taxation measures called 'Fit for 55'. The package consists of 17 proposals, 15 regulatory proposals (revisions and new proposals for EU Directives, Regulations and Decisions) and two sector-specific communications from the Commission (in addition to the general framework communication, the two sector-specific communications concerned the new forest strategy and the strategy for the development of alternative fuel infrastructure).

Of the 15 regulatory proposals, nine are revisions of existing directives, regulations and decisions, and six are new measures (five regulations and one decision). However, the package is not to be regarded as exhaustive with regard to the European climate strategy and will be complemented by further measures at a later stage. The proposals are dealt with in the EU Council in four council

formations: Environment, Energy, Transport and ECOFIN. Negotiations on the legislative texts are still ongoing and, nevertheless, national delegations have expressed different sensitivities on a wide range of issues.

The proposals concern, among other things, the revision of the Energy Taxation Directive, which aims at raising the taxation of the most polluting fuels; the revision of the Effort Sharing Regulation (ESR) for the reduction of climate-changing gas emissions by member states, assigning each state strengthened emission reduction targets based on GDP; the raising of average CO2 emission limits for new passenger cars and light commercial vehicles, with the proposal to set 2035 as the deadline for the registration of new internal combustion cars and vans (phase-out); the revision of the EU ETS mechanism, raising the previously envisaged targets, including the maritime sector in three years, and expanding the sectors covered by this mechanism with the provision of an initially separate market for the road sector and for air conditioning in buildings; the proposal for the creation of a Social Climate Fund, in order to accompany the ecological transition and protect the weakest segments of the population from possible price increases on fuels and building heating due to the extension of the ETS in these sectors; the proposal for a regulation on land use, land use change and forestry - LULUCF, proposing more ambitious targets to expand the EU's natural carbon sink, which is considered essential to offset emissions.

Although many of the proposals have a direct impact on the transport sector, there are three that fall under the direct remit of the Transport Council and concern the infrastructure network for alternative fuels, air transport and maritime transport respectively.

The **proposal for an Alternative Fuels Infrastructure Regulation (AFIR)** aims at updating European Parliament's Directive 2014/94/EU on the deployment of alternative fuels infrastructure (ADFI) and make it more suitable for the new European objectives by transforming it into a regulation. The initiative sets out the requirements for significantly expanding the EU's network of charging and refuelling stations for alternative fuels - mainly electric batteries and hydrogen. This proposal defines the provisions for the implementation of certain charging and refuelling infrastructures for light and heavy road transport vehicles, ships and aircraft. The proposal requires Member States to increase recharging capacity in line with sales of zero-emission cars and requires the installation of recharging and refuelling points at regular intervals on TEN-T networks. Different targets are defined per type of vehicle (light or heavy) and per type of power supply (in particular electric or hydrogen). No specific target is identified for recharging stations for liquefied natural gas (a generic reference is given to an '*appropriate*' number of stations by 2025). Provisions requiring Member States to ensure the implementation of a minimum shore-side electricity capacity to supply seagoing ships at seaports and inland waterway vessels, and minimum provisions for the supply of electricity to all aircraft stationed at airports in the TEN-T core network and the TEN-T comprehensive network are also spelled out.

The aviation proposal (*ReFuelEU Aviation*) focuses **on** *Sustainable Aviation Fuels (SAF*) and foresees an obligation for suppliers to add an increasing share of sustainable fuels to the mix with which aircraft in the EU are refuelled by 2% in 2025, 5% in 2030 and 63% in 2050 (including a 28% share of synthetic fuels). This should in particular cover advanced biofuels and synthetic aviation fuels (*e-fuels*).

All but the smallest EU airports will also be required to provide airlines with greener *jet fuel* by 2025.

Airlines (EU and non-EU) departing from EU airports will have to load fuel (*jet fuel*) prior to departure in quantities corresponding to the volume required to operate the flight. Airports with more than one million passengers per year or more than 100,000 tonnes of cargo traffic per year will have to ensure distribution and storage systems for access to SAF. Member States will have to introduce a system of effective penalties.

Synthetic aviation fuels have the potential to achieve emission savings of up to 85% or more compared to fossil aviation fuels, and the Commission is confident that it can bring almost all production within the EU (92% of requirements), not least in order to develop a new industrial sector.

The proposal on maritime transport (*FuelEU Maritime*) aims at promoting the use of sustainable alternative fuels in European maritime transport and ports by addressing both the current market barriers to their use and the uncertainty over which technical options are ready for commercialisation. The proposal envisages introducing new obligations for ships over 5,000 gross tonnage arriving in or departing from EU ports - regardless of the flag they fly - limiting the amount of greenhouse gases they emit and progressively revising these limits downwards.

A gradual shift to the use of alternative fuels is aimed at achieving 75% emission reductions by 2050. Considering that fuel costs represent a substantial share of ship operators' costs, the aim is also to introduce preferential tax treatment for *Renewable and Low-Carbon Fuels (RLF*).

Finally, the proposal lays down requirements for the use of shore-side electricity or zero-emission power while at berth for specific types of ships and lists possible exceptions, defines common principles for compliance monitoring, and establishes principles for the certification of biofuels, biogas, renewable fuels of non-biological origin and fuels derived from recycled carbon.

Based on these considerations, **a study commission was set up at the MIMS in April 2021[6] with the mandate, among other things, to prepare a systematic analysis framework on the challenges arising from medium- to long-term technological, environmental and climate change with reference to the infrastructure and mobility sectors:**

- identifying potential policy actions needed to make the development and investment Programmes promoted by the Ministry consistent with the consequences and impacts of these changes;
- proposing policy schemes and potential initiatives designed with the objective of anticipating and mitigating potential risks to which the infrastructure system is exposed, even at the individual city level, increasing its resilience and adaptive capacity;
- analysing opportunities for the development of evaluation and monitoring models for initiatives and investments that can guarantee, in the *ex-ante* design phase and in the implementation phase, a correct identification of the expected impacts, also in order to create a Programming process consistent with the strategic guidelines at European and national level;

[6] Decree of the Italian Minister for Infrastructure and Sustainable Mobility No. 131 of 7 April 2021.

- evaluating strategies and investments in mobility infrastructure also in the light of their contribution to reducing greenhouse gas emissions and achieving Italy's climate targets;
- proposing an evolution of the regulatory framework with the aim of incorporating timely and systemic climate change risk assessments into the planning and project selection processes in the infrastructure and mobility sectors, including the contribution of projects to the de-carbonisation pathway and the achievement of the relevant 2030 and 2050 targets.

In February 2022, the concluding report '*Climate Change, Infrastructure and Mobility*' was presented, in which **the current and future impacts of the climate crisis on national and local infrastructure and transport systems are outlined, and potential strategies are provided for reducing risks, mitigating the effect of economic activities on climate-changing gas emissions, and adapting the infrastructure system to new climate conditions**.

The proposed mitigation and adaptation measures are based on potential structural and technological innovations (e.g., drainage management and road coverage with drainage asphalt), on the evaluation of the benefits provided by better care of ecosystems (e.g., hydro-morphological rehabilitation of riverbeds or the enhancement of green spaces for heat reduction in urban areas), or on investments in knowledge through the collection and processing of data, models and forecasts useful for assessing risks and improving policies. As to logistics infrastructure, evaluations suggest developing distribution systems resilient to the unforeseen events typical of the climate crisis by focusing on security of supply rather than its timeliness.

With regard to decarbonisation objectives, structural measures to mitigate pollutant emissions are indicated, especially in passenger and goods transport systems, in order to favour the modal shift towards sustainable transport; this is due to the fact that, the development of the railway system, the production of renewable and alternative power sources, and communication and information technology systems such as *Mobility as a service* (*MaaS*) play a central role in this transformation.

In order to achieve these goals, the importance of investments directed towards the extension of underground and tram networks, the extension of the high-speed rail system, as well as the improvement of regional rail networks and the strengthening of low-emission local public transport, and the extension of cycle paths in cities or infrastructures that facilitate the choice of active mobility in safety, is emphasised. What is also emphasised is that policies to facilitate the ecological transition should aim at disincentivising the use of polluting vehicles and encouraging sustainable mobility through subsidies or tax policies, for example by strengthening *green public procurement* and special facilities for certified sustainable investments.

The Commission Report highlights the crucial role that an investment strategy in sustainable infrastructures and mobility – as accompanied by the adoption of appropriate technologies, policy instruments and governance practices, as well as a consequent, targeted and synergetic industrial policy - can play in Italy's economic development.

To frame and quantify the scale of the climate change problem in Italy, the Report assessed existing knowledge on the present and future dynamics of the main climate variables and their physical and economic impacts in the country, focusing on two climate scenarios:

- the target scenario, to which Italy is also committed, which aims at keeping the temperature increase below two degrees with respect to pre-industrial levels (the RCP 2.6 scenario of the *Intergovernmental Panel on Climate Change* (IPCC), which implies a 55% reduction in emissions in 2030, compared to 1990, and the achievement of net zero emissions in 2050;
- the trend scenario, consistent with policy measures already in place, that would keep the global average temperature increase just under three degrees (IPCC RCP 4.5 scenario).

Mitigation measures and policies are required for the transition from the trend scenario to the target scenario, while adaptation measures will have to cope with climate damage that cannot be avoided. Even in the RCP 2.6 scenario, which is still characterised by higher average temperatures than today, residual damage from climate change will have to be addressed.

Climate projections indicate a substantial increase in the frequency and intensity of extreme weather events in Italy. In fact, on the basis of these analyses of climate evolution in Italy, it has been conservatively estimated that **the direct economic impact on infrastructures caused by extreme weather events, such as heat and cold waves, droughts, fires, river and coastal flooding and windstorms, will be about EUR 2 billion per year by 2030 and about EUR 5 billion per year by 2050** for infrastructures in Italy in the RCP 4.5 trend scenario (a fraction of the overall damage); this corresponds to an increase of about 12 times the value of the current damage, considering that the value of the damage roughly doubles if the systemic impacts of infrastructure damage are taken into account.

In absolute terms, the Report shows that **climate risk values are higher in northern Italian regions characterised by a denser infrastructure distribution potentially exposed to future extreme climate events**. Conversely, **in relative terms, the increase in climate risk will be more** pronounced in the **regions of Southern Italy, as a result of** more pronounced variations in extreme climate events directly dependent on temperature and precipitation, thus predicting that **climate change will increase regional economic inequalities** in the absence of adequate adaptation strategies.

The report then notes the possible optimal management of existing infrastructures to make them more resilient to climate change, defining which adaptation strategies can be deployed in light of the impacts that estimated extreme climate events will have on these infrastructures. In particular, **the proposed adaptation measures are divided into:**

- **structural and technological measures**, based on physical interventions and/or construction measures, to make exposed systems more resilient to extreme events (so-called *grey* or *hard* measures);
- **actions based on an approach that uses nature** and the multiple benefits provided by ecosystems to improve resilience and adaptive capacity (green measures);

- **interventions that include cognitive** (data, models, forecasts), policy, legal, social, management and financial **measures**, useful for governance and raising awareness of climate change issues (i.e., *soft* measures);
- **cross-cutting measures** resulting from the integration of the three previous ones.

Each of these actions should be developed considering a medium- and long-term risk assessment, with an adequate treatment of uncertainties, in order to integrate the evolutionary analyses of changing climate scenarios and enhance predictive and adaptive capacity, referring whenever possible to "*no/low regrets*" actions and technologies, i.e., making the identification of strategic and technological choices in line with the overall system objectives and robust to uncertainties descend from the risk analyses. It is also useful that **specific resilience and adaptation interventions on infrastructures are assessed through a *'climate proof'* process**, i.e., by implementing all the phases of *screening* and ex-ante and ex-post assessment of the impacts of extreme climatic events, understanding and knowing how to manage their dynamism and having the appropriate monitoring and assessment tools available.

An adaptation plan also has a number of indirect benefits related to the growth stimulus that investments generate and linked to co-benefits in terms of reduced health impacts and reduced social inequality. **To achieve Italy's decarbonisation targets, major investments are needed, particularly in the passenger and goods transport system**, which is responsible for about 30% of total GHG emissions. Mitigation measures related to passenger and freight transport systems concern all transport systems and all their components (physical infrastructure, vehicles, technologies supporting transport systems and intermodality), and since these aspects are closely interconnected, they must be assessed in a systemic manner.

IT communication systems in support of transport systems and sustainable passenger and freight mobility will play an increasingly central role, requiring, in particular, the development of investments involving the systematic use of optical switching solutions for data transfer, new technologies for on-off equipment management, the development of a 5G network, as well as the enhancement of cybersecurity and the development of *Internet of Vehicles* (IoV) and *Vehicle to Everything* (V2X).

The Report also shows how **the ecological transition (i.e., moving from an RCP 4.5 scenario to an RCP 2.6 scenario) would conservatively earn Italy from 0.5% to 2.3% of GDP already by 2050, in terms of avoided damages** (considering both direct and indirect impacts). **The additional annual investments to reduce emissions to -55% in 2030 (compared to 1990) and net-zero in 2050 are in the order of EUR 16 billion per year for Italy** (to be added to those for adaptation). Including transport, energy networks and infrastructures, as well as the energy efficiency of mobility and existing infrastructures, the required investment could reach 8 billion, about 50% of the annual total. These are therefore both public and private investments that will have to be stimulated with appropriate incentive policies, seeking the right compromise between subsidy or detaxation policies and fiscal policies (taxes or permits) so as to keep the public budget in balance.

I.6 THE DEMAND FOR PASSENGER TRANSPORT

The economic crisis of the early 2000s, which has not yet been fully overcome and has been exacerbated by the COVID-19 pandemic, has produced a profound transformation both in the habits and needs of citizens and in Italy's economy. With reference to the transport and logistics sector, **there has been a '*decoupling*' between economic trends (GDP) and trends in passenger and freight traffic**, with the latter shrinking more than the economy during the recession (e.g., scepticism and fear of the future), but growing at much higher rates than GDP during the recovery phase.

The many factors that have characterised the evolutionary dynamics of the global socio-economic scenario include some that are more directly connected to the transport and mobility sector, which has always played an essential role in society and the economy and is now undergoing a profound technological evolution; said evolution will have to take place in response to the new requirements posed by global dynamics, all under the banner of ecological transition. Self-driving vehicles, 5G connection between vehicles and infrastructures, electrification and fuels with a low environmental impact, innovative mobility services increasingly linked to use and not to possession, are just some of the trend lines towards which major public and private investment has been focusing for some time now in Europe.

I.6.1 MEDIUM-TERM TRENDS

In the years immediately following the economic crisis of 2009, Italy experienced significant reductions in passenger traffic for nearly all modes of transport. Between 2009 and 2012, the number of passengers decreased by a total of 15.2%, falling for the first time since the early 1990s below the symbolic number of 800 billion passenger-km. This decline varied depending on the mode of transport: road transport decreased by 16.4%, maritime transport by 13.7%, rail transport by 3.2%, and air transport by 12.6%.

TABLE I.6.1.1: 2009-2020 TRENDS IN NATIONAL PASSENGER TRAFFIC BY MODE OF TRANSPORT

SETTORE		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
TRASPORTO STRADALE (a)	mld pax-km	864,03	842,09	810,70	722,20	762,87	787,39	820,18	847,24	885,46	857,73	875,91	579,84
	quota %	92,1%	91,9%	91,5%	90,7%	91,0%	91,0%	91,0%	91,2%	91,3%	90,6%	90,6%	94,3%
TRASPORTO FERROVIARIO (b)	mld pax-km	55,48	54,68	54,36	53,72	55,73	57,12	59,54	59,77	61,01	63,60	64,98	25,78
	quota %	5,9%	6,0%	6,1%	6,7%	6,6%	6,6%	6,6%	6,4%	6,3%	6,7%	6,7%	4,2%
TRASPORTO MARITTIMO (c)	mld pax-km	4,32	4,09	3,90	3,73	3,63	3,66	3,59	3,55	3,78	4,10	4,14	2,97
	quota %	0,5%	0,4%	0,4%	0,5%	0,4%	0,4%	0,4%	0,4%	0,4%	0,4%	0,4%	0,5%
TRASPORTO AEREO	mld pax-km	14,70	15,73	16,77	16,55	16,26	17,03	17,80	18,65	19,82	20,96	21,89	6,01
	quota %	1,6%	1,7%	1,9%	2,1%	1,9%	2,0%	2,0%	2,0%	2,0%	2,2%	2,3%	1,0%
TOTALE	**mld pax-km**	**938,53**	**916,58**	**885,73**	**796,19**	**838,49**	**865,19**	**901,12**	**929,21**	**970,07**	**946,39**	**966,91**	**614,60**
	var. %	**4,2%**	**-2,3%**	**-3,4%**	**-10,1%**	**5,3%**	**3,2%**	**4,2%**	**3,1%**	**4,4%**	**-2,4%**	**2,2%**	**-36,4%**

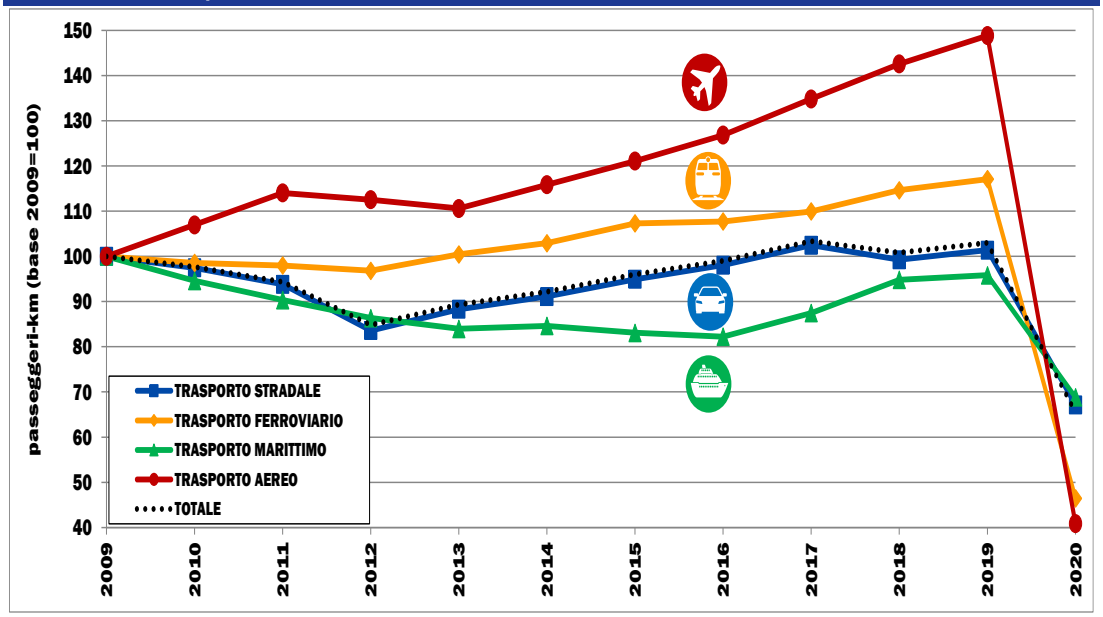
Note: this includes passenger travel performed by national carriers on domestic routes whose origin and destination are within Italian territory; for rail traffic, it also includes international traffic carried out on national territory. (a) includes suburban public transport, trolley buses and urban buses, as well as private services; (b) includes transport by rail, tram, underground, funicular and cable car; (c) includes sea and inland waterway transport.

Source: processing on data from the National Report for Sustainable Infrastructures and Mobility by the STM of the MIMS.

Since 2013 there has been a recovery in passenger mobility, due in part to the activation and subsequent liberalisation in 2012 of high-speed (HS) rail services. This has resulted in an almost constant growth in total travel, with average increases of 2.8% per year, involving all modes of transport, including maritime (+1.6%), rail and road (+2.8%), and air (+4.1%), resulting in 2019 in total demand returning to pre-2009 crisis levels, only to collapse again in 2020 due to the COVID-19 pandemic.

According to the most recent estimates published in the National Report for Sustainable Infrastructures and Mobility of the MIMS, **94% of the more than 600 billion passengers-km recorded in 2020 travelled via road transport**, which showed a decrease of 33.8% compared to the previous year, while maritime transport decreased by 28.2%, rail transport by 60.3% and air transport by 72.5%. The decline in road travel is mainly attributable to restrictive travel policies, smart-working, distance learning (*didattica a distanza*, DAD) and generally reduced mobility needs for social interactions. However, during the same period, the percentage of road travel increased by 4% compared to collective modes of transport, a sign of the population's reluctance towards shared forms of mobility.

FIGURE I.6.1.1: 2009-2020 TRENDS IN NATIONAL PASSENGER TRAFFIC BY MODE OF TRANSPORT (BASE INDICES 2009=100)

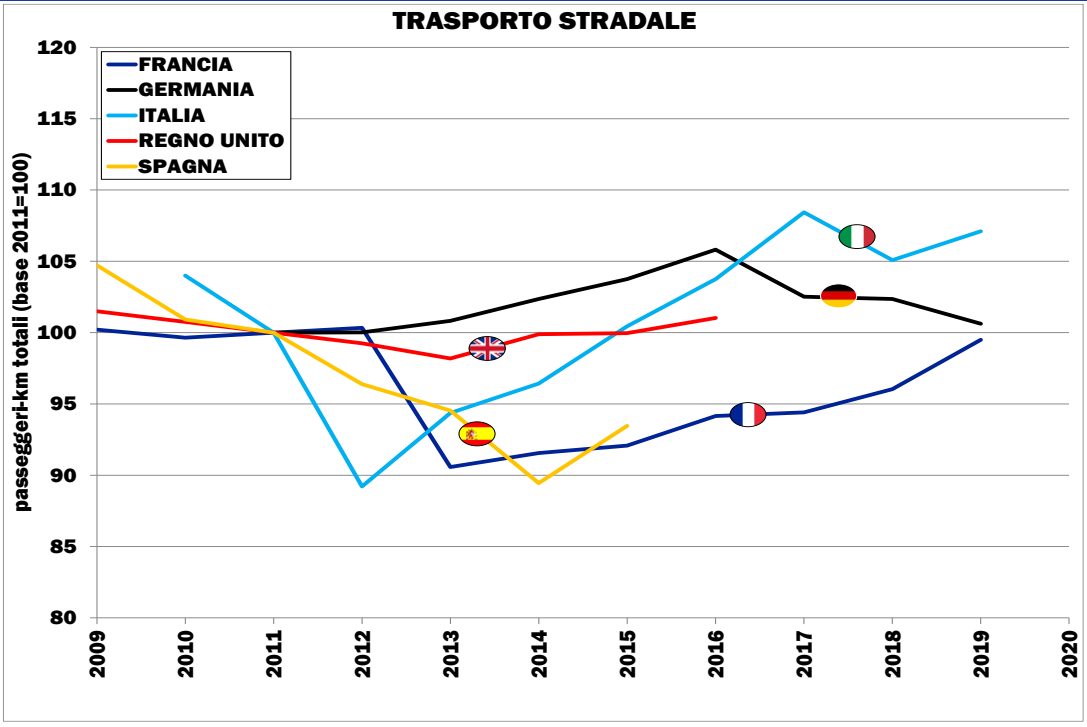


Source: processing on data from the National Report for Sustainable Infrastructures and Mobility by the STM of the MIMS

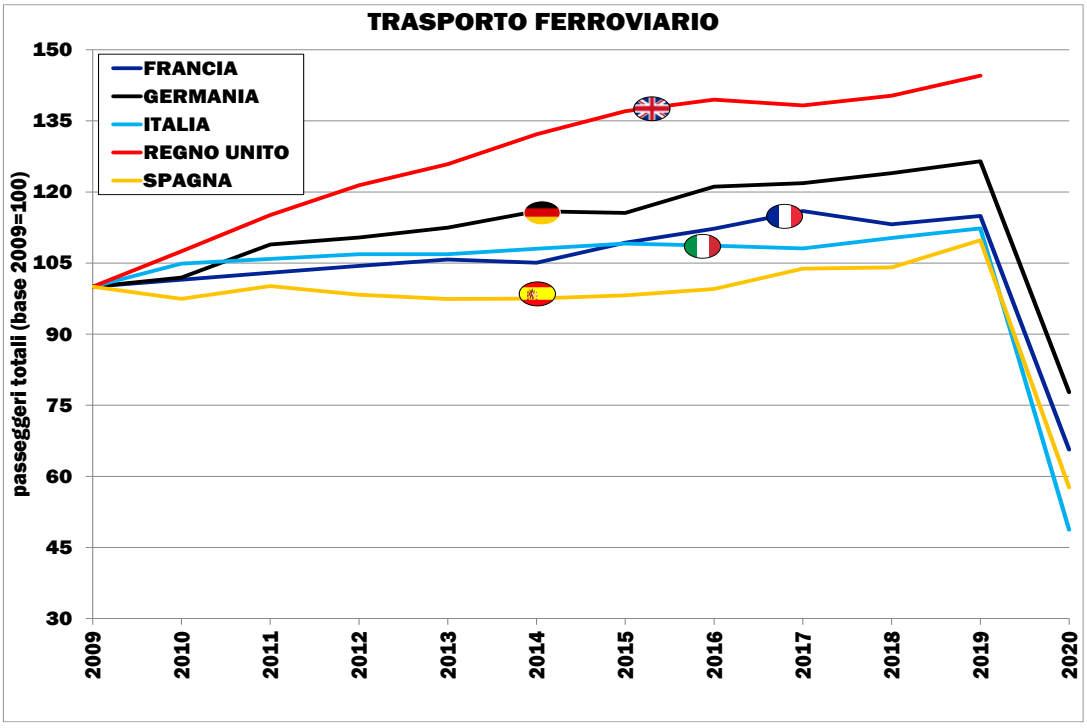
A comparison with the main European countries, using data published by Eurostat on passenger traffic, shows that:

- as regards **road transport**, from 2010 to 2019 traffic trends in Italy fluctuated, first marked by a sharp drop in the post-crisis period, with about 14 percentage points lost between 2010 and 2012, compared to -1.5% in the United Kingdom and -4.5% in Spain. From 2012 onwards, Italy saw a significant growth for the following five-year period (with an average annual rate of +4.0%), the only country among the five compared with such high rates, followed by Germany and the United Kingdom, which recorded an annual growth of only 0.5% over the same period;
- as regards **rail transport**, in the 2009-2019 period Italy saw an average annual growth of 1.2% in passengers transported - lower than France, Germany and especially the United Kingdom, which recorded positive average annual rates of 1.4%, 2.4% and 3.8% respectively, and higher only than Spain (+1.0%). The pandemic crisis profoundly affected this mode of transport, reducing domestic traffic in 2020 by 56.6%, much more than in the other countries considered (which recorded losses ranging from the 38.5% of Germany to the 47.5% of Spain);

FIGURA I.6.1.2: 2009-2020 TRENDS IN INTERNATIONAL PASSENGER TRAFFIC BY MODE OF TRANSPORT

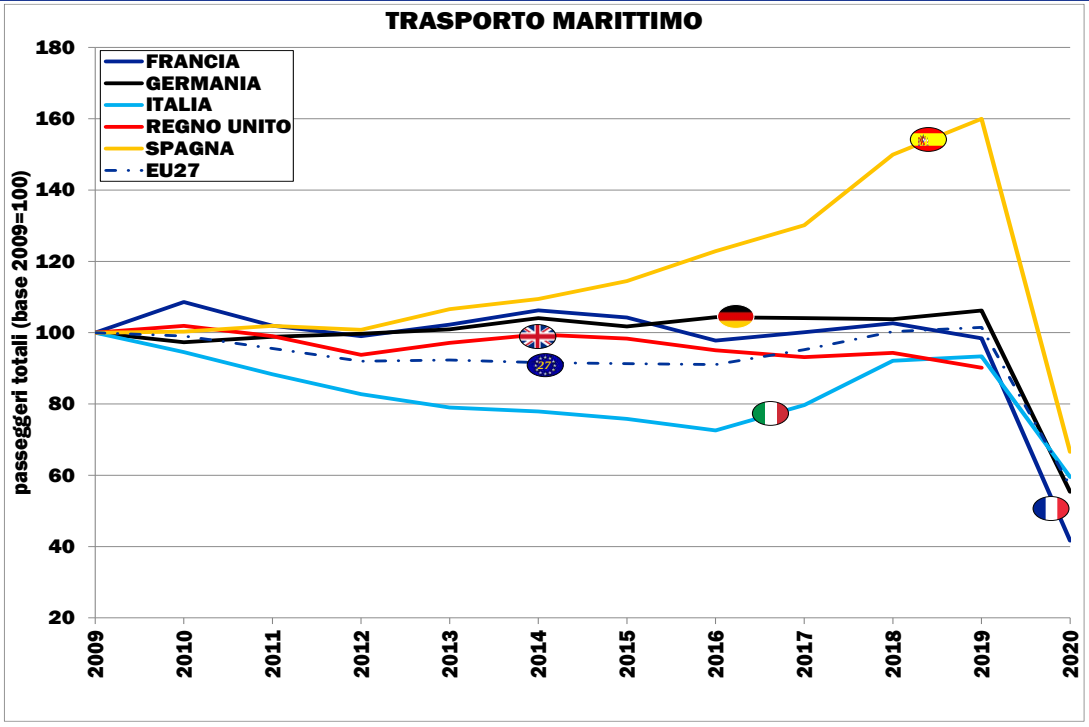


Note: data for Italy and Germany are available from 2010 and 2011 respectively; data for Spain and the UK are available until 2015 and 2016 respectively; data for the EU27 are not available.

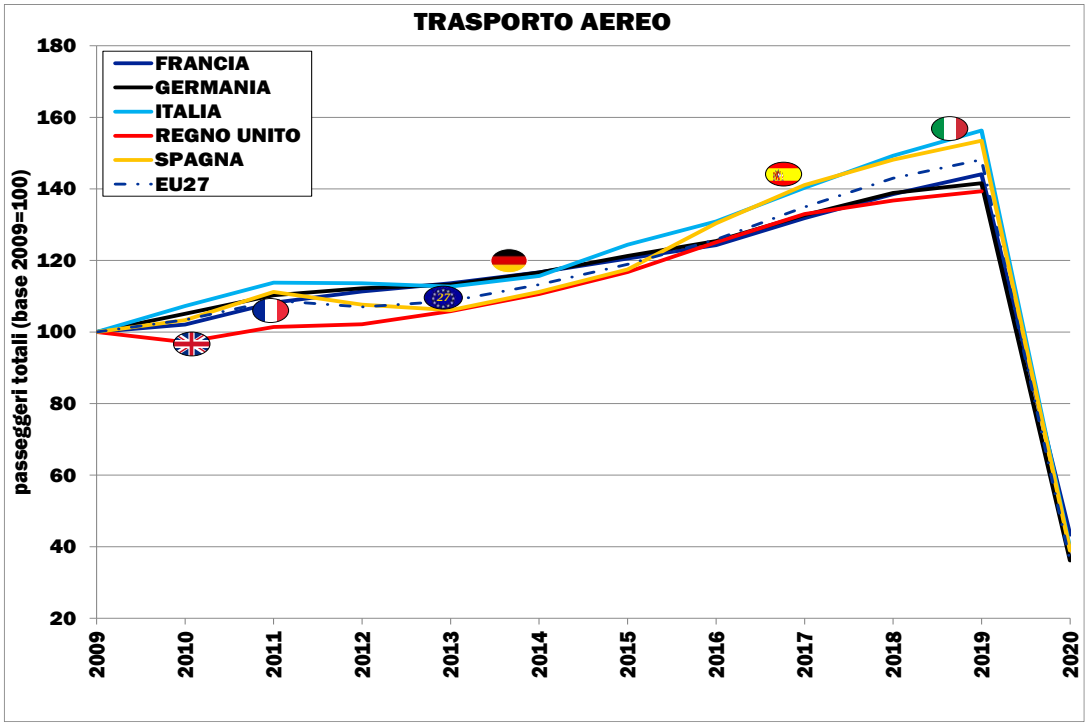


Note: data for the UK are available until 2019; data for the EU27 are not available.

FIGURE I.6.1.2: 2009-2020 TRENDS IN INTERNATIONAL PASSENGER TRAFFIC BY MODE OF TRANSPORT



Note: data for the UK are available until 2019; data for the EU27 are available from 2002.



Note: data for the UK are available until 2019; data for the EU27 are available from 2007.
Source: processing on Eurostat data by the STM of the MIMS.

- as regards **maritime transport**, in the 2009-2019 period, Italy experienced an average annual reduction of 0.4% in passengers transported, higher only than that recorded by the United Kingdom (-1.0%) and lower than that recorded by France (-0.1%) and above all by Germany and Spain, which instead recorded an average annual growth of 0.6% and 4.9% respectively. Nevertheless, in 2020 Italy remained the country with the largest volume of passengers transported in Europe, equal to 24% of the total EU27 volume. It was also the country, among the five countries analysed, where demand decreased the least due to the COVID-19 health crisis (-36% compared to -48% in Germany and -58% in Spain and France);
- as regards **air transport**, in the 2009-2019 period, Italy experienced strong growth in passenger traffic, the most significant among the countries considered (4.6% average annual growth, compared to 4.5% in Spain, 3.7% in France, 3.6% in Germany and 3.4% in the United Kingdom). However, Italy still ranked as the country, among those analysed, with the lowest demand for air transport in 2020 (15% of total passengers transported in the EU27), with a trend that is nevertheless in line with that of the other member countries in terms of volumes lost (-75% for Spain, -74% for Germany and -70% for France).

ROAD AND MOTORWAY TRANSPORT

A more detailed analysis of **road traffic** shows that, in 2020, around 90% of total travel (expressed in passenger-km) happened by private vehicles (cars, motorbikes and mopeds) (almost two percentage points more than in the pre-pandemic period), followed by suburban collective transport vehicles (buses and trolley buses) with 8.8% of the total, and urban collective transport vehicles with only 1.2%.

TABLE I.6.1.2: TRENDS IN ROAD PASSENGER TRAFFIC (2009-2020)

SETTORE	SISTEMA DI TRASPORTO		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
TRASPORTO STRADALE	PRIVATO (autovetture, motocicli e ciclomotori)	mld pax-km	762,32	739,87	708,25	620,68	661,10	684,58	717,68	744,93	782,78	755,13	771,62	522,07
		quota %	88,2%	87,9%	87,4%	85,9%	86,7%	86,9%	87,5%	87,9%	88,4%	88,0%	88,1%	90,0%
	COLLETTIVO URBANO (autolinee e filovie)	mld pax-km	11,91	12,09	11,54	10,97	11,02	11,20	10,95	11,02	11,59	11,60	12,11	6,71
		quota %	1,4%	1,4%	1,4%	1,5%	1,4%	1,4%	1,3%	1,3%	1,3%	1,4%	1,4%	1,2%
	COLLETTIVO EXTRAURBANO (autolinee e filovie)	mld pax-km	89,80	90,13	90,91	90,54	90,75	91,61	91,56	91,29	91,09	91,00	92,18	51,07
		quota %	10,4%	10,7%	11,2%	12,5%	11,9%	11,6%	11,2%	10,8%	10,3%	10,6%	10,5%	8,8%
	TOTALE	**mld pax-km**	**864,03**	**842,09**	**810,70**	**722,20**	**762,87**	**787,39**	**820,18**	**847,24**	**885,46**	**857,73**	**875,91**	**579,84**
		var. %	**4,8%**	**-2,5%**	**-3,7%**	**-10,9%**	**5,6%**	**3,2%**	**4,2%**	**3,3%**	**4,5%**	**-3,1%**	**2,1%**	**-33,8%**

Note: this includes passenger travel performed by national carriers on domestic routes whose origin and destination is within Italian territory.

Source: processing on data from the National Report for Sustainable Infrastructures and Mobility by the STM of the MIMS.

With reference to **motorway traffic**, an analysis of the vehicle-km trends recorded by AISCAT in the pre-pandemic period shows a total average annual growth of 3% (light-duty and heavy-duty vehicles) in the period 2009-2019, with a downturn recorded only in the period 2010-2013 following the economic crisis of 2009.

Overall, motorway traffic from 2009 to 2019 grew by 0.2% in the case of light-duty vehicles and by 8.7% in the case of heavy-duty vehicles. The health crisis had a significant impact on this sector as well, leading to a decline from around 65 billion vehicle-km to around 44 billion (-32.1%) in the case of light-duty vehicles, and from around 20 billion vehicle-km to just over 17 billion (-12.4%) in the case of heavy-duty vehicles.

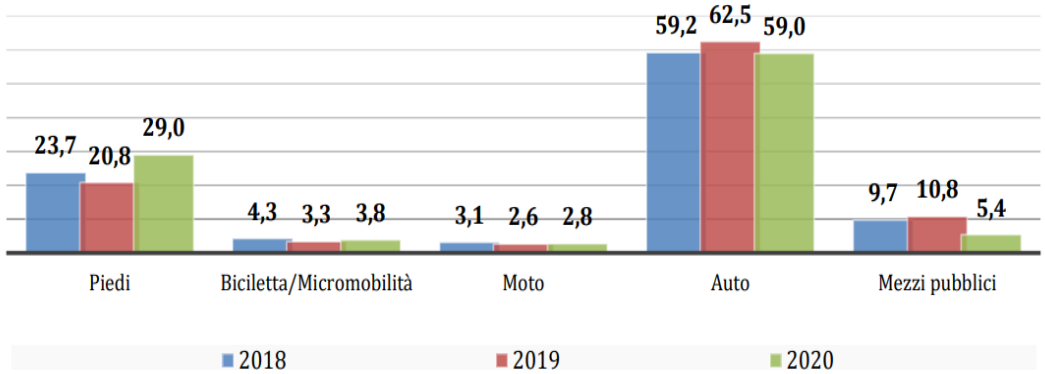
TABLE I.6.1.3: TRENDS IN MOTORWAY TRAFFIC BY CATEGORY (2009-2020)

SETTORE	CATEGORIA		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
TRASPORTO STRADALE (AUTOSTRADE)	VEICOLI LEGGERI	mld veic-km	64,55	64,50	63,60	59,08	58,18	59,33	61,51	63,51	64,70	64,54	64,69	43,92
		quota %	77,9%	77,5%	77,2%	77,3%	77,4%	77,5%	77,5%	77,4%	77,2%	76,7%	76,4%	71,5%
		var. %	2,0%	-0,1%	-1,4%	-7,1%	-1,5%	2,0%	3,7%	3,3%	1,9%	-0,2%	0,2%	-32,1%
	VEICOLI PESANTI	mld veic-km	18,36	18,77	18,75	17,35	16,94	17,25	17,87	18,51	19,14	19,58	19,96	17,49
		quota %	22,1%	22,5%	22,8%	22,7%	22,6%	22,5%	22,5%	22,6%	22,8%	23,3%	23,6%	28,5%
		var. %	-7,3%	2,2%	-0,1%	-7,5%	-2,3%	1,8%	3,6%	3,6%	3,4%	2,3%	1,9%	-12,4%
	TOTALI	mld veic-km	82,92	83,27	82,36	76,42	75,12	76,57	79,38	82,02	83,83	84,13	84,66	61,41
		var. %	-0,2%	0,4%	-1,1%	-7,2%	-1,7%	1,9%	3,7%	3,3%	2,2%	0,4%	0,6%	-27,5%

Source: processing on AISCAT data by the STM of the MIMS.

As for **urban mobility**, the data published by ISFORT show that individual motorised mobility (cars and motorbikes) is the most used mode of transport in 2019 with 65.1% of the total, followed by 'soft' mobility (walking, cycling and micro-mobility) with 24.1% and collective transport with 10.8%. The pandemic mainly affected 'soft' mobility, which increased by almost nine percentage points reaching 32.8% in 2020, mainly at the expense of collective transport (-50.0% compared to 2019).

FIGURE I.6.1.3: TRENDS IN THE MODAL SPLIT OF TRAFFIC IN URBAN AREAS BY TRANSPORT MODE* (2018-2020)



* Private vehicles include private cars with and without passengers, agricultural vehicles, hire cars and other private vehicles. Public means of transport includes all collective means of transport, urban (city buses, metros, trams, etc.) and suburban (long-distance buses, local and long-distance trains, aeroplanes, ferries/ships, etc.), as well as other means of transport, including individual ones, although publicly available (taxis, vehicles for hire, car sharing, car-pooling platforms). It refers both to economically compensated transport (LPT in general) and to transport entirely on the market (e.g., HS trains, segments of long-distance public road transport).

Source: ISFORT, 18. Report on the mobility of Italians (2021)

RAIL TRANSPORT

In 2020, national rail transport (consisting of small, medium and large railway companies) transported approximately 82.3% of all passenger-km of the entire sector (almost 5 percentage points less than in the pre-pandemic period), against the 17.7% of fixed-route urban and metropolitan transport systems, comprising metros (12.8%), urban and suburban tramways (3.5%) and cable cars/funicular railways (1.4%).

TABLE I.6.1.4: TRENDS IN RAIL PASSENGER TRAFFIC (2009-2020)

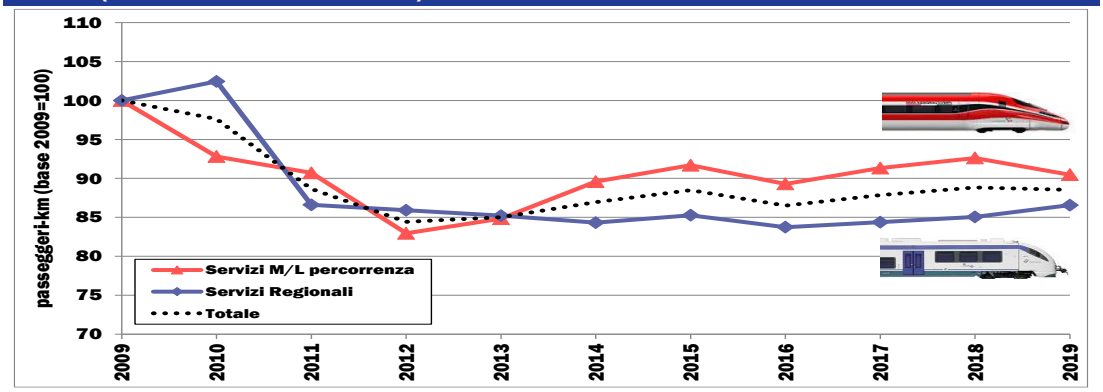
SETTORE	SISTEMA DI TRASPORTO		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
TRASPORTO FERROVIARIO	FERROVIA (piccole/medie e grandi imprese)	mld pax-km	48,12	47,17	46,85	46,76	48,74	49,96	52,21	52,18	53,23	55,49	56,59	21,21
		quota %	86,7%	86,3%	86,2%	87,0%	87,5%	87,5%	87,7%	87,3%	87,3%	87,2%	87,1%	82,3%
	METROPOLITANA	mld pax-km	5,84	5,95	5,85	5,30	5,36	5,39	5,53	5,39	5,56	5,85	6,05	3,31
		quota %	10,5%	10,9%	10,8%	9,9%	9,6%	9,4%	9,3%	9,0%	9,1%	9,2%	9,3%	12,8%
	TRANVIA (urbana ed extraurbana)	mld pax-km	1,17	1,21	1,32	1,32	1,31	1,34	1,38	1,44	1,47	1,51	1,64	0,91
		quota %	2,1%	2,2%	2,4%	2,5%	2,3%	2,4%	2,3%	2,4%	2,4%	2,4%	2,5%	3,5%
	FUNIVIA e FUNICOLARE	mld pax-km	0,35	0,35	0,35	0,34	0,33	0,43	0,43	0,77	0,75	0,75	0,69	0,35
		quota %	0,6%	0,6%	0,6%	0,6%	0,6%	0,8%	0,7%	1,3%	1,2%	1,2%	1,1%	1,4%
	TOTALE	**mld pax-km**	**55,48**	**54,68**	**54,36**	**53,72**	**55,73**	**57,12**	**59,54**	**59,77**	**61,01**	**63,60**	**64,98**	**25,78**
		var. %	**-2,3%**	**-1,5%**	**-0,6%**	**-1,2%**	**3,8%**	**2,5%**	**4,2%**	**0,4%**	**2,1%**	**4,3%**	**2,2%**	**-60,3%**

Note: this includes passenger travel performed by national carriers on domestic routes whose origin and destination are within Italian territory, as well as international traffic carried out on national territory.

Source: processing on data from the National Report for Sustainable Infrastructures and Mobility by the STM of the MIMS.

In the period following the economic crisis of 2009, **medium and long-distance rail traffic** (M/L services) decreased overall by more than 17%, with an average annual decrease of 6 percentage points in the period from 2009 to 2012; as previously mentioned, in 2012 this trend was reversed, thanks above all to the increased competitiveness of the High Speed (HS) market, which contributed to generating in the sector an overall increase of traffic of more than 9% in the period 2012-2019.

FIGURE I.6.1.4: 2009-2019 TRENDS IN MEDIUM- AND LONG-DISTANCE (M/L) AND REGIONAL RAIL TRAFFIC (BASE INDICES FOR 2009=100)



Source: processing on data from the National Report for Sustainable Infrastructures and Mobility by the STM of the MIMS.

In the period surrounding the economic crisis of 2009, **regional traffic** experienced a trend similar to the previous one, characterised by a substantial and more prolonged downturn compared to M/L services (-15.7% in the period 2009-2014), followed by a period of growth for the following five years (+2.7%).

MARITIME TRANSPORT

According to data published by Assoporti, in 2020 Italy transported a total of 32.5 million passengers by sea, down by almost 52% compared to the previous year, compared to the 38.7% growth recorded between 2016 and 2019. Looking at the data for the individual forms of transport, **cruise transport**, after a setback in 2017 (-8.7%), saw a strong expansion in the following two years (+20.5%), reaching almost 12 million passengers per year, most of which, however, were lost in 2020 due to the pandemic (-94.6%). **Ferry** transport, which before COVID-19 had been growing at an average annual rate of 2.3% (2016-2019), also saw its volume of traffic almost halve in 2020 (-46.4%), reaching just under 10 million passengers per year. **Local transport**, which had greatly increased its volumes in 2019 compared to the previous year (+50.7%), lost more than 15 million passengers (-41.1%) in 2020, returning to 2018 levels.

TABLE I.6.1.5: TRENDS IN MARITIME PASSENGER TRAFFIC (2016-2020)

SETTORE	SISTEMA DI TRASPORTO		2016	2017	2018	2019	2020
TRASPORTO MARITTIMO	LOCALI	pax	21.059.619	24.463.919	24.956.882	37.604.888	22.167.622
		quota %	43,3%	47,6%	47,4%	55,7%	68,3%
	TRAGHETTI	pax	16.792.511	17.098.973	17.425.404	17.976.530	9.643.200
		quota %	34,5%	33,3%	33,1%	26,7%	29,7%
	CROCIERE	pax	10.793.332	9.851.544	10.775.371	11.872.711	641.294
		quota %	22,2%	19,2%	20,5%	17,6%	2,0%
	TOTALE	**pax**	**48.645.462**	**51.414.436**	**52.662.471**	**67.454.129**	**32.452.116**
		var. %	**-**	**5,7%**	**2,4%**	**28,1%**	**-51,9%**

Source: processing on Assoporti data by the STM of the MIMS.

AIR TRANSPORT

The Italian airport system, among the sectors most affected by the pandemic and the resulting restrictions on free movement between states, ended 2020 with only 53 million passengers, with a loss of over 140 million travellers (-72.6%) compared to the previous year. To be most penalised, according to the data published by Assaeroporti, were **international EU** (-77.5%) **and non-EU** (-81.2%) **destinations**, while a more contained, but still significant, drop was registered by **domestic flights** (-61.3%), which in 2019 accounted for 33% of total traffic, reaching almost 50% in 2020.

All demand segments saw a significant slowdown in the growth that had characterised the period between the economic crisis and the pandemic, with **national flights** growing by 14.2% in the 2013-2019 period and reversing the 11.1% decline seen in the 2011-13 period, as was also the case for **non-EU international flights** (which rose from -23.6% in 2014-2015 to +38.7% between 2015 and 2019),

unlike **flights to EU destinations**, which grew steadily from 2009 to 2019 at an average annual rate of more than seven percentage points.

TABLE I.6.1.6: TRENDS IN AIR PASSENGER TRAFFIC (2009-2020)

SETTORE	CATEGORIA		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
TRASPORTO AEREO	NAZIONALI	mln pax	55,94	59,23	63,42	60,13	56,38	57,75	58,59	60,09	61,92	63,95	64,39	24,91
		quota %	42,9%	42,4%	42,7%	41,0%	39,2%	38,4%	37,3%	36,5%	35,3%	34,5%	33,4%	47,2%
		var. %	1,1%	5,9%	7,1%	-5,2%	-6,2%	2,4%	1,5%	2,6%	3,0%	3,3%	0,7%	-61,3%
	INTERNAZIONALI EXTRA-UE	mln pax	23,94	26,66	27,08	28,26	29,10	26,98	22,23	22,77	24,77	28,03	30,82	5,80
		quota %	18,4%	19,1%	18,2%	19,3%	20,2%	18,0%	14,2%	13,8%	14,1%	15,1%	16,0%	11,0%
		var. %	-3,0%	11,3%	1,6%	4,4%	3,0%	-7,3%	-17,6%	2,4%	8,8%	13,2%	9,9%	-81,2%
	INTERNAZIONALI UE (inclusa Svizzera)	mln pax	49,56	52,64	57,21	57,46	57,76	64,95	75,62	81,18	88,09	93,01	97,22	21,90
		quota %	38,0%	37,7%	38,5%	39,2%	40,1%	43,2%	48,2%	49,4%	50,3%	50,2%	50,4%	41,5%
		var. %	-5,4%	6,2%	8,7%	0,4%	0,5%	12,5%	16,4%	7,4%	8,5%	5,6%	4,5%	-77,5%
	TRANSITI DIRETTI	mln pax	1,02	1,03	0,77	0,76	0,64	0,58	0,47	0,40	0,37	0,42	0,42	0,15
		quota %	0,8%	0,7%	0,5%	0,5%	0,4%	0,4%	0,3%	0,2%	0,2%	0,2%	0,2%	0,3%
		var. %	-8,1%	1,5%	-25,7%	-0,5%	-16,0%	-9,7%	-18,4%	-15,6%	-7,3%	15,0%	-1,3%	-63,2%
	TOTALE	mln pax	**130,46**	**139,56**	**148,47**	**146,61**	**143,88**	**150,25**	**156,91**	**164,44**	**175,15**	**185,42**	**192,85**	**52,76**
		var. %	**-2,3%**	**7,0%**	**6,4%**	**-1,3%**	**-1,9%**	**4,4%**	**4,4%**	**4,8%**	**6,5%**	**5,9%**	**4,0%**	**-72,6%**

Source: processing on Assaeroporti data by the STM of the MIMS.

SHARING MOBILITY SERVICES

Shared mobility refers to the shared use of a vehicle (car, moped, bicycle or, most recently, scooter), thus increasing the opportunity to travel without having to own the vehicle one is using and, consequently, reducing the negative externalities associated with its use. This form of mobility, in line with the 'sharing economy', is frequently provided through dedicated mobility services, such as car/bike/scooter-sharing, either in the classic Station Based (SB) version or in the more recent Free Floating (FF) version (but also car-pooling and similar forms of sharing).

According to data published by the Italian Sharing Mobility National Observatory, promoted (among others) by the MIMS, in 2020 sharing mobility in Italy dropped, like many other sectors, compared to the previous year. The strong contraction in demand for mobility, caused by the various measures adopted to contain the virus, resulted in a drop in overall travel by more than 30% for **all sharing mobility services**, which is smaller than that experienced by traditional collective transport but in line with that of private mobility. The lower drop is partly due to the advent in Italian cities of new and widespread scooter-sharing services, which, despite appearing in such a critical context from an economic and social point of view, have proved capable of catering to the needs of the population, on average gaining a high level of acceptance among users.

In 2020, there were about 150 sharing mobility services in Italy, three times as many as in 2015, with scooters alone accounting for 43% of all active services and 42% of all shared vehicles available. When looking at **micro-mobility services alone** (scooters, bicycles and mopeds), this share rises to 91% of the total number of shared vehicles in Italy, an increase of seven percentage points over the previous year, to the detriment of car-sharing, which decreased its offer of services (-2%) and vehicles (-12%). 2020 also saw the indicator of sharing mobility rentals contract

for the first time (-22%), interrupting a positive trend that had been constant for years (average annual growth of 23% from 2015 to 2019).

The reduction in **car-sharing** supply can be attributed both to the general decline in demand for cars (-48% in rentals and -42% in kilometres travelled in 2020), the sector which suffered most from mobility restrictions, and the reluctance to use vehicles not always sanitised. Demand for **bike-sharing** services declined by more than 50% in 2020, both in terms of rentals and kilometres travelled, even in the face of a growing offer (+4% in terms of available fleet) and an increasing use of e-bikes. **Scooter-sharing** performed better than bike-sharing: on the one hand, the offer of services and vehicles increased in 2020 (+25% and +45% respectively), on the other hand, the service experienced the smallest decrease in terms of rentals (-25%) and travelled distances (-29%) on an annual basis.

TABLE I.6.1.7: TRENDS IN SHARING MOBILITY SERVICES IN ITALY (2015-2020)

SETTORE	CATEGORIA		2015	2016	2017	2018	2019	2020
SHARING MOBILITY	Carsharing SB	Servizi	16	17	14	18	19	22
		Veicoli	959	997	1.058	1.174	1.255	1.293
		Noleggi	212.635	214.433	218.806	270.770	359.461	238.637
		Percorrenze (km)	7.253.451	8.534.562	7.392.881	8.290.072	8.992.587	6.149.041
	Carsharing FF	Servizi	11	13	15	22	23	19
		Veicoli	4.293	5.828	6.621	6.787	7.009	5.989
		Noleggi	6.286.570	7.907.799	9.361.425	11.809.998	11.991.228	6.241.149
		Percorrenze (km)	41.645.890	53.476.100	63.321.453	80.680.068	88.656.237	51.698.122
	Bikesharing SB	Servizi	24	24	24	24	26	25
		Veicoli	8.409	8.814	9.064	9.543	10.892	9.941
		Noleggi	5.854.144	7.423.545	7.597.809	6.404.822	5.297.482	2.778.629
		Percorrenze (km)	n.d.	n.d.	n.d.	n.d.	12.941.287	6.631.187
	Bikesharing FF	Servizi	-	-	7	9	13	14
		Veicoli	-	-	22.140	14.700	22.480	24.764
		Noleggi	-	-	2.791.744	5.932.897	7.455.555	2.969.412
		Percorrenze (km)	n.d.	n.d.	n.d.	n.d.	9.339.182	4.262.571
	Scootersharing	Servizi	1	2	2	3	4	5
		Veicoli	150	640	500	2.240	5.070	7.360
		Noleggi	100.000	231.400	257.000	989.000	2.921.975	2.196.642
		Percorrenze (km)	n.d.	n.d.	n.d.	n.d.	13.066.688	9.279.239
	Monopattini in sharing	Servizi	-	-	-	-	14	64
		Veicoli	-	-	-	-	4.650	35.550
		Noleggi	-	-	-	-	-	7.418.938
		Percorrenze (km)	-	-	-	-	-	14.448.287
	TOTALE	**Servizi**	**52**	**56**	**62**	**76**	**99**	**149**
		Veicoli	**13.811**	**16.279**	**39.383**	**34.444**	**51.356**	**84.897**
		Noleggi	**12.453.349**	**15.777.177**	**20.226.784**	**25.407.487**	**28.025.701**	**21.843.407**
		Percorrenze (km)	**n.d.**	**n.d.**	**n.d.**	**n.d.**	**132.995.981**	**92.468.447**

Source: processing by the STM of the MIMS on data from the Italian Sharing Mobility National Observatory.

Finally, as already noted, **scooter sharing** has changed the face of sharing mobility in Italy; arrived at the end of 2019, they have achieved unprecedented results, despite the pandemic period, becoming in 12 months the most popular service in Italy and the one with the most vehicles operating in Italian cities (up 357% and 665% respectively compared to the previous year), as well as the service

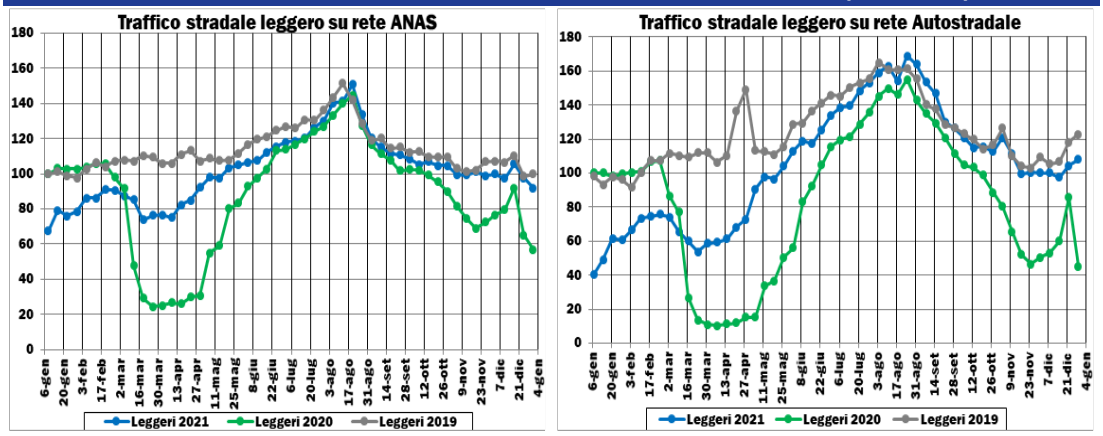
with the highest number of rentals (over 20,000 per day on average) and the most travelled distance of all micro-mobility services.

I.6.2 TRENDS DURING THE COVID-19 PANDEMIC

In order to better understand, manage and thus predict the consequences of the pandemic crisis on the transport sector, in 2020 the MIMS activated, under its Technical Mission Structure (*Struttura Tecnica di Missione*, STM) the **Observatory on mobility trends during the COVID-19 health emergency**, in order to monitor the impacts that the spread of the virus, the policies to regulate/limit mobility and the vaccination campaign have had, and are still having, on the demand for travel and its modal breakdown. The main consequences that the spread of COVID-19, the policies to regulate/limit mobility and the vaccination campaign have had on the demand for travel (passengers and freight) and its modal distribution can be inferred from the analysis conducted using data made available by national multimodal operators and the Directorates-General of the MIMS, as well as those available in the open-source databases of the main national and international mobility players. In particular:

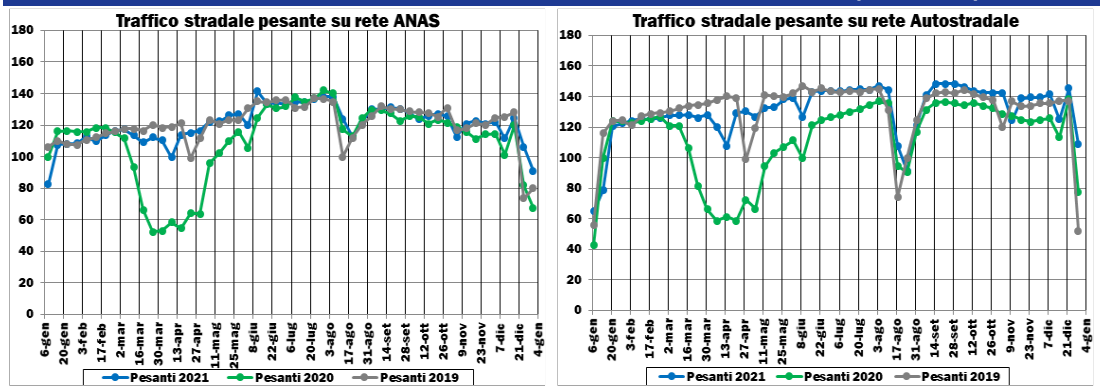
- **traffic volume of light vehicles circulating on the road network** (ANAS and Autostrade) dropped by up to more than 80% during the first lockdown (March-April 2020), a reduction that almost recovered during the summer of 2020. The second wave of the pandemic, which spread in the autumn of 2020, again produced negative impacts on road mobility, although less marked than those experienced during the first lockdown: road traffic fell by up to more than 55% compared to 2019, partly due the fact that fewer and different restrictions were applied to national mobility (e.g., the Prime Ministerial Decree of 03 November 2020 known as the 'red zones' Decree). Starting in December 2020, road traffic increased again, reaching in February 2021 about 80% of that recorded in the same period of 2019, only to fall again until mid-April due to the third wave of the COVID-19 pandemic. From April 2021, a significant recovery in road mobility took place, also due to the first results of the vaccination campaign, with traffic on the ANAS (Autostrade) network in December 2021 being 6% (9%) lower than in the same period of 2019;
- **road traffic volume of heavy vehicles (goods)** showed a slightly different trend from that observed for light vehicles, registering a contraction of up to more than 75% in the period from March to April 2020, recovering much of what had been lost as early as July 2020 (-5% on the ANAS network and -10% on the motorway network compared to 2019) and being much less affected by the rising number of infections in the autumn period and the related policies restricting mobility. As early as October 2020, freight road traffic recovered almost completely, a trend that was also confirmed in 2021, except for a 20% drop recorded in April 2021. In December 2021, freight traffic increased by 5% on the ANAS network and by 10% on the motorway network compared to the same period in 2019;

FIGURE I.6.2.1: IMPACT OF THE MEASURES ADDRESSING THE COVID-19 HEALTH EMERGENCY ON ROAD TRAFFIC VOLUME OF LIGHT VEHICLES ON THE ANAS AND MOTORWAY NETWORK (2019-2021)



Source: STM of the MIMS - Observatory on mobility trends during the COVID-19 health emergency.

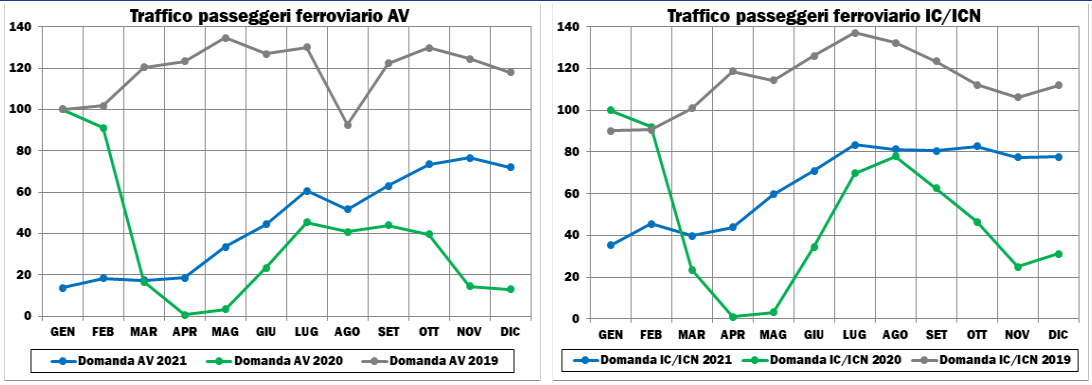
FIGURE I.6.2.2: IMPACT OF THE MEASURES ADDRESSING THE COVID-19 HEALTH EMERGENCY ON ROAD TRAFFIC VOLUME OF HEAVY VEHICLES ON THE ANAS AND MOTORWAY NETWORK (2019-2021)



Source: STM of the MIMS - Observatory on mobility trends during the COVID-19 health emergency.

- **rail travel on high-speed (HS) lines,** and medium- and long-distance rail travel in general, decreased by up to almost 100% in the period from March to April 2020, even in the face of a reduction in services of more than 95%. Unlike road transport, the drop was marginally reversed in the summer of 2020 (-60% compared to 2019), while a further significant setback was recorded during the second wave of the COVID-19 pandemic (up to -95%). During 2021, passenger traffic grew significantly in the third and fourth quarters of the year, resulting in a 39% lower demand for mobility compared to the same period in 2019, against a 10% contraction in the supply of services;
- **rail travel on Intercity services (IC and ICN)** performed similarly to rail travel on HS services, with a drop of up to more than 95% in the period from March to April 2020 and a persistent contraction also in July 2020, with demand for rail travel 50% lower than in 2019. During the second wave of the pandemic, this segment of rail demand recorded further losses up to about 80% in December 2020, followed by a recovery in 2021 and ending up in December at -31% compared to the same period in 2019;

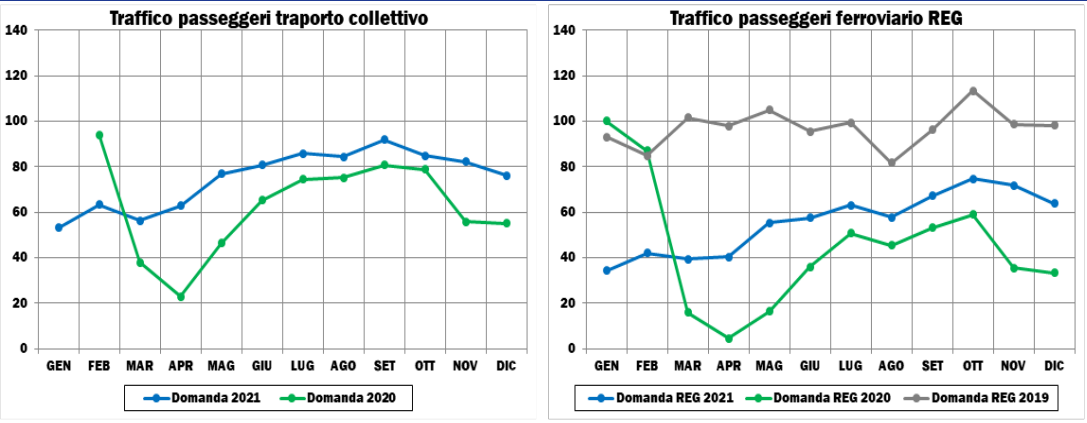
FIGURE I.6.2.3: IMPACT OF THE MEASURES ADDRESSING THE COVID-19 HEALTH EMERGENCY ON HS AND IC/ICN PASSENGER RAIL TRAFFIC (2019-2021)



Source: STM of the MIMS - Observatory on mobility trends during the COVID-19 health emergency.

- **travel by collective transport** (mainly LPT travel) dropped even more sharply than private/individual road transport, reaching peak losses of even more than 90% in the period from March to April 2020, only partly recovered in July 2020 (about -30% compared to the pre-COVID-19 period). Again, the second wave of the pandemic and the resulting policies restricting mobility produced less pronounced effects on public transport than those observed during the first lockdown, with peak drops of 60%, which had not yet recovered by December 2020. This positive trend was also recorded in the first three quarters of 2021, only to come to a further halt in the fourth quarter due to the new increase in infections, meaning that in December 2021, collective transport traffic was 31% lower compared to the same pre-COVID-19 period;
- the fact that **travel by collective transport** recorded greater contractions than individual road transport suggests that a modal shift from collective to individual modes of transport may have taken place, mainly due to the desire to increase social distancing, without prejudice to the overall reduction in demand for mobility due to continued smart-working, distance learning, etc., which does not yet seem to have fully recovered by December 2021;
- since the end of the first lockdown, **regional rail travel** experienced a significantly different trend compared to HS and medium- and long-distance rail services. In September 2020, regional traffic was in fact only 10% lower than in 2019, while in autumn 2020, during the second wave of the pandemic, it fell by 50% compared to 2019, also due to the drop in study-related travel, which partly uses these rail services. Since May 2021, travel has picked up again, only to fall in the fourth quarter of the year, reaching in December a level 35% lower than in the same period of 2019;

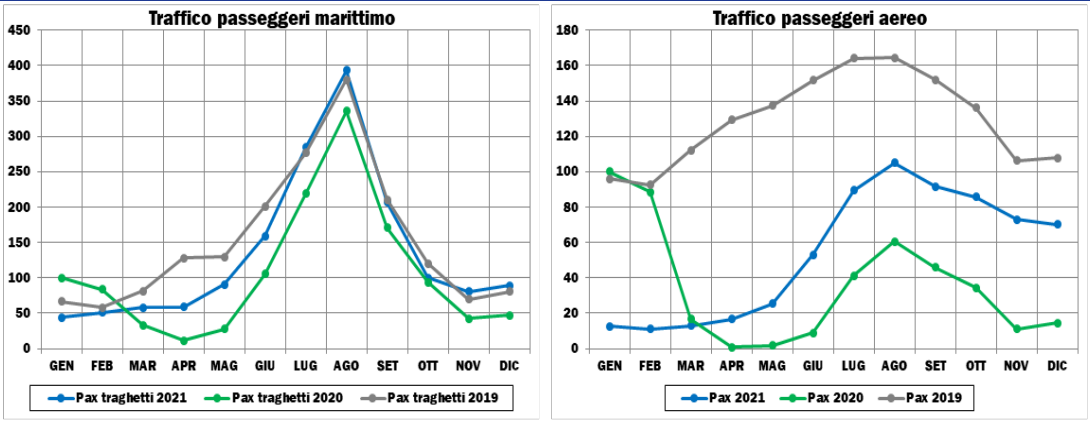
FIGURE I.6.2.4: IMPACT OF THE MEASURES ADDRESSING THE COVID-19 HEALTH EMERGENCY ON PASSENGER TRAFFIC WITH REGIONAL COLLECTIVE AND RAIL TRANSPORT (2019-2021)



Source: STM of the MIMS - Observatory on mobility trends during the COVID-19 health emergency.

- passenger demand for **maritime transport services** fell differently from that for land-based services, with losses of up to 90-100% in the period from April to May 2020. The following recovery led, in the summer of 2020, to a 10÷20% reduction in passenger demand compared to 2019, a difference that then remained substantially stable in 2021;

FIGURE I.6.2.5: IMPACT OF THE MEASURES ADDRESSING THE COVID-19 HEALTH EMERGENCY ON MARITIME (FERRY) AND AIR PASSENGER TRAFFIC (2019-2021)



Source: STM of the MIMS - Observatory on mobility trends during the COVID-19 health emergency.

- demand (and supply) for **air travel** fell sharply in 2020, starting in March and peaking at -99% in April-May compared to 2019. The following recovery only partially reduced the drop of the previous year (-60%), and again the second wave of the pandemic resulted in a further significant drop in passenger traffic (-90% in November 2020), which had still not been recovered by the end of 2021.

I.7 DEMAND FOR TRANSPORT, CRITICAL ISSUES AND OPPORTUNITIES FOR GOODS AND LOGISTICS

The logistics sector plays an essential and irreplaceable role in a modern economy such as the Italian economy. Not only does **logistics contribute approximately EUR 90 billion to Italy's GDP, accounting for 5.2%, its services are also purchased by all production sectors**[7]. Transport and storage services account for 4.8% of the inputs to the manufacturing industry, a percentage even higher than that of energy suppliers, which account for 3.1%, with percentages of 19% in the mining industry, 10% in the wood and non-metallic minerals sector, and 2% in the pharmaceutical industry. In general, the cost of transport has a greater incidence when the specific value of the goods transported is lower, as in the case of aggregates, cement and steel, which play a decisive role for the construction sector, so crucial for the creation of the major infrastructures envisaged by the PNRR and other Programmes financed by national resources. The role of logistics for trade is even greater, accounting for 26.4% of the factors of production used in wholesale trade and 12.2% of those used in retail trade.

In Italy, 1.5 million workers are employed in the logistics sector, generating 2.3 billion working hours, corresponding to 5.3% of the national total. Of these, about half are employed in road transport, and 34% in storage and transport services[8].

Also relevant is the environmental impact of transport, both in terms of harmful emissions and greenhouse gas emissions. While the former have been drastically reduced over the years, thanks to policies that have urged the industry to develop increasingly less polluting vehicles, this has not been the case for greenhouse gas emissions and particularly CO_2. In 2019, the transport sector, both passenger and freight, emitted 108.9 million tonnes of CO_2[9], corresponding to 25.2% of national emissions. According to ISPRA estimates, commercial vehicles travel more than 65 billion kilometres for freight transport, emitting almost 26 million tonnes of CO_2, roughly 24% of transport sector emissions and 6% of total Italian emissions.

I.7.1 MEDIUM-TERM TRENDS AND THE IMPACT OF THE PANDEMIC

In 2020, the Italian economic system was strongly affected by the global COVID-19 pandemic, which not only changed people's consumption and mobility habits, it also caused national Gross Domestic Product (GDP) to contract by 8.9% compared to 2019 and 6.6% compared to 2009. The Italian economy, already severely hit by the economic crises of 2007-2009 and 2012-2013, had shown weak signs of recovery with +2.6% between 2019 and 2009, thanks to strong contributions from exports, imports and international tourism, which, however, were also heavily affected by the restrictions imposed by the pandemic. Tourism, in particular, saw a decline between 2019 and 2020 of 57.6%, while exports and imports recorded losses of 14.0%

[7] Source: ISTAT, Input-output table, 2021 edition

[8] Source: ISTAT, Annual National Economic Accounts and Aggregates, year 2019

[9] ISPRA Italian Emission Inventory 1990 - 2019 Informative Inventory Report 2021, April 2021

and 12.9%, respectively, while domestic consumption and investment contracted to a lesser extent (-9.2% and -7.7%).

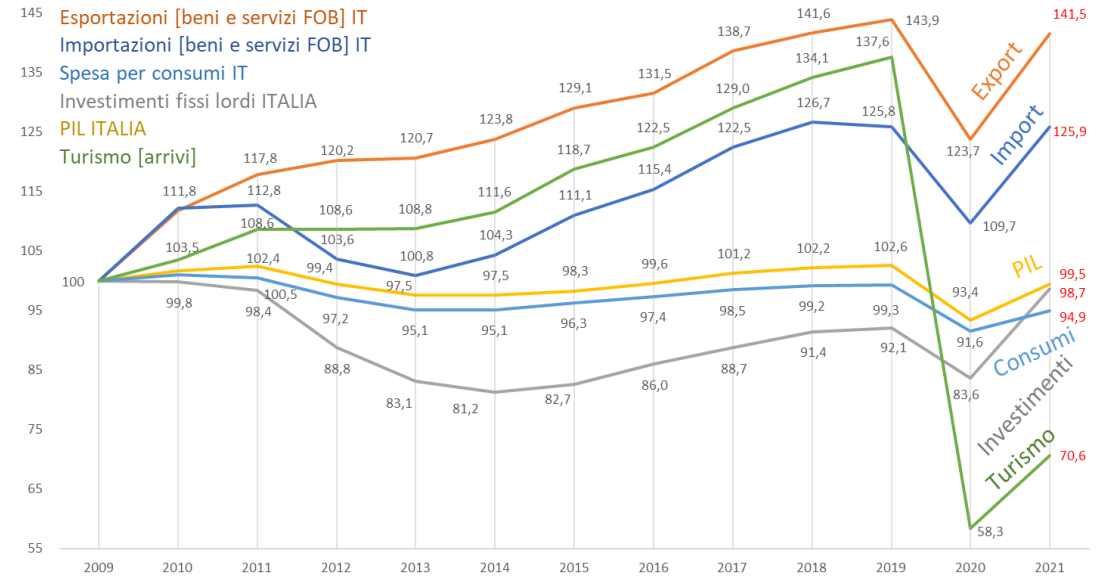
In 2021, economic activity rebounded strongly, above expectations: GDP increased by 6.5%, exports by 14.3%, imports by 14.8%, fixed investments by 18.1%, returning to pre-COVID levels. Tourism (+21%) and consumption (+3.3%) also showed signs of recovery, although insufficient to return to 2019 levels.

The national logistics system has played an essential role in sustaining the Italian economic system over the last two years: in 2020, traffic indicators increased or decreased significantly less than GDP, exacerbating the phenomenon of decoupling recorded in the previous decade. Estimates for 2021 confirm the positive trend in freight traffic: rail freight transport grew by 10.6% in 2021 compared to 2020, Ro-Ro maritime transport grew by 18.9% (in terms of tonnes) in the first nine months of 2021 compared to the first nine months of 2020, hinterland container transport (i.e., net of transhipment) increased by 12.9% and total container transport (hinterland and transhipment) increased by 3.3% (in terms of tonnes) in the same period. Italy's total freight volumes are substantially back to 2019 levels, with -1.9% for air cargo and -0.5% for HGV traffic on the motorway network, while GDP is still 3.0% below the pre-crisis level, thus exacerbating the phenomenon of decoupling.

In recent years, companies in the freight and logistics sector have consolidated their position, with more than 89,000 companies active in freight and logistics in 2020 and a turnover of EUR 85 billion[10]. Driven by the strong growth registered in 2020 by e-commerce (+26% compared to the previous year), the sector has reached EUR 22.7 billion in turnover (8% of total retail sales)[11] and has started to develop new distribution logistics models to meet the needs of end users. At the same time, the sector is facing the challenge of the ecological transition: freight transport has a high and growing weight on greenhouse gas emissions, to the point that **in 2019 freight transport was responsible for 42% of greenhouse gas emissions attributable to transport[12], while emissions in absolute terms were 93% of those of the manufacturing and construction sectors**[13].

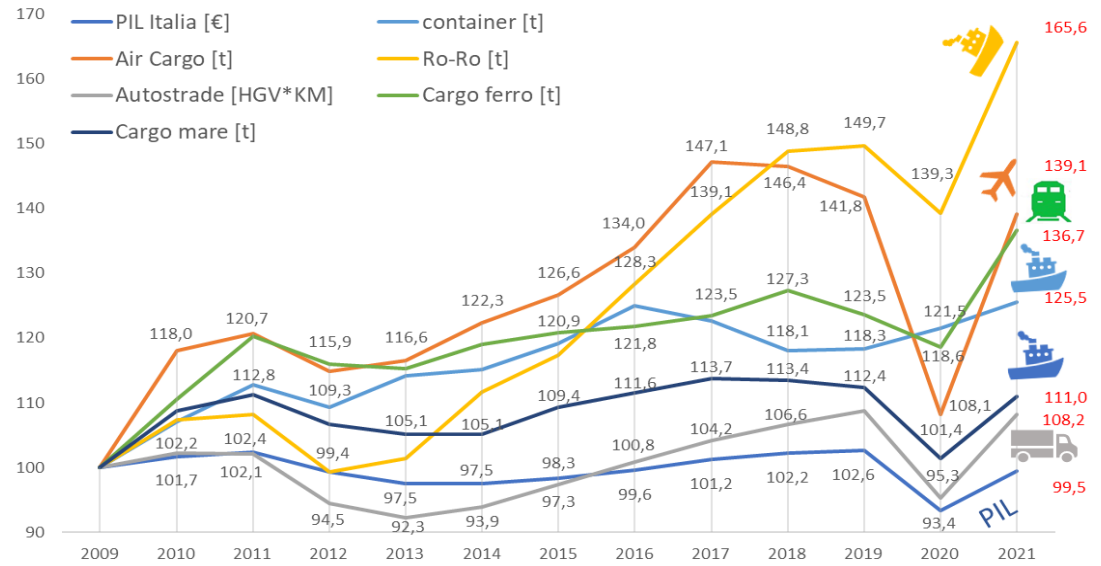
[10] Processing of data from the Contract Logistics Observatory of the Politecnico di Milano university (2020).
[11] Source: B2c e-commerce observatory promoted by the School of Management of the Politecnico di Milano.
[12] Source: International Transport Forum - ITF Transport Outlook, 2021
[13] Processing on Italian GHG Inventory 1990-2019, ISPRA 2020 and ITF Transport Outlook data, 2021.

FIGURE I.7.1.1: 2009-2021 CHANGES IN MACROECONOMIC INDICES (VALUES IN CONSTANT, CHAINED EUROS WITH 2015 AS THE REFERENCE YEAR AND INDEXED TO 2009=100)



Source: processing on ISTAT data by RAM SpA. 2021: Provisional data.

FIGURE I.7.1.2: 2009-2021 CHANGES IN GDP AND FREIGHT TRAFFIC IN ITALY BY TRANSPORT MODE (INDEX VALUES 2009=100, CHANGES IN GDP AT CONSTANT PRICES)



Source: processing on data from ISTAT, ASSOPORTI, ASSAEROPORTI, AISCAT. 2021: Provisional data

RAIL TRANSPORT

The strategy pursued in recent years to revitalise rail freight transport has produced remarkable results: despite a period of rather weak overall economic growth, the rail freight sector recorded an encouraging +11% between 2014 and 2019 in terms of train-km produced on the Italian National Rail Network (IFN) and even a +34% on routes to/from the peninsular South. This remained the case also in the last two years: in fact, if in 2020 the average contraction in volumes recorded

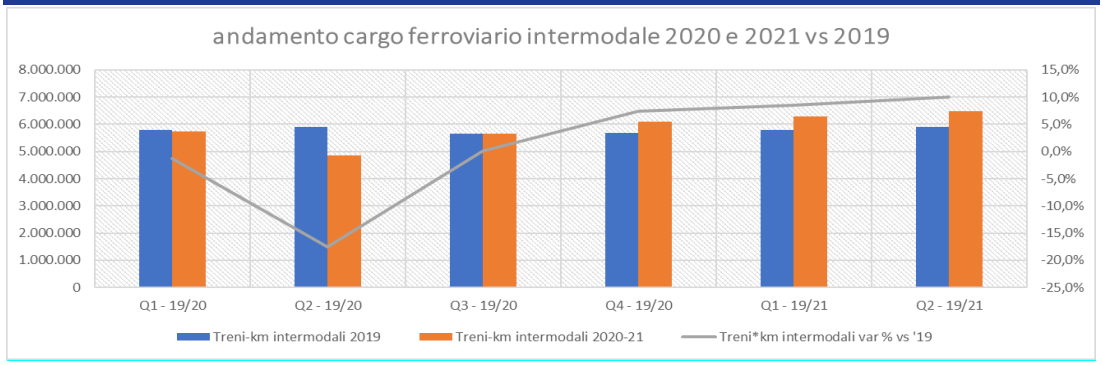
was limited to 3%, from the second half of 2020 and throughout 2021 a strong rebound was recorded, so that by the third quarter of 2020 intermodal rail traffic had already returned to the pre-crisis levels of 2019. **In 2021, there was an increase of +13% compared to the previous year, bringing the change compared to the pre-crisis period to +9.9%** (as the weight carried by rail convoys increased in the period 2019-2021: a 12% increase over 2019 in terms of gross tonne-kilometres).

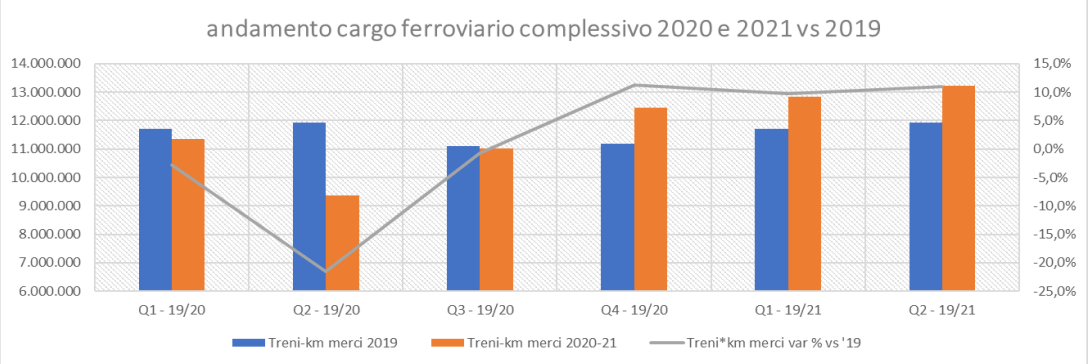
TABLE I.7.1.1: 2014-2020 RAIL FREIGHT TRAFFIC BY MACRO-AREA

servizi ferroviari merci: milioni di treni*km per regione d'Italia 2014-2020								Δ%
	2014	2015	2016	2017	2018	2019	2020	'14-'20
da/per Sicilia	3,3	2,8	2,7	2,3	2,1	2,4	2,52	-24%
da/per SUD	12,1	13,7	14,6	15,1	15,3	16,2	15,78	31%
sub Tot sud+isole	15,4	16,6	17,3	17,5	17,5	18,6	18,30	19%
altre regioni	28,4	29,0	29,4	29,9	29,6	30,2	28,79	1%
TOTALE ITALIA treni*km	**43,8**	**45,5**	**46,7**	**47,3**	**47,1**	**48,7**	**47,08**	**8%**

Source: processing by R.A.M. S.p.A.

FIGURE I.7.1.3: TOTAL AND INTERMODAL RAIL CARGO, 2019-2020-2021 TREND





Source: processing by R.A.M. S.p.A.

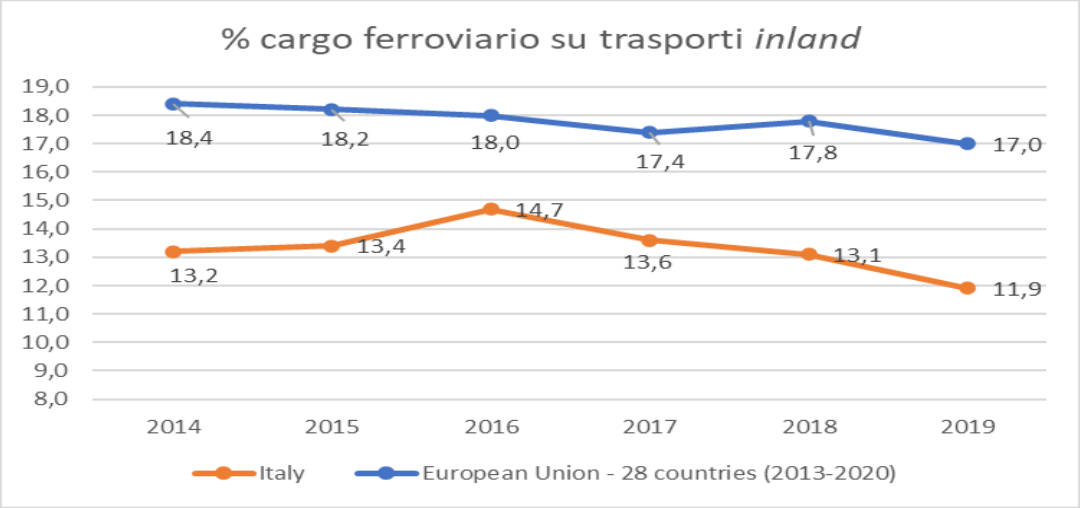
TABLE I.7.1.2: TOTAL FREIGHT SERVICES (INCLUDING LIS TECHNICAL SERVICES)

anno	N° Treni	Treni km	Treni km elettrici	tonn*km merci (peso lordo treno)	var% a/a treni-km	var% a/a ton-km
2018	243.051	47.762.481	46.840.428	46.304.824.737		
2019	243.051	48.962.561	48.035.040	47.227.122.666	2,5%	2,0%
2020	233.764	47.446.196	46.770.317	46.010.371.681	-3,1%	-2,6%
2021	266.675	53.815.720	53.130.071	53.021.181.473	13,4%	15,2%

Source: elaboration on RFI data - PICWeb.

Another positive outcome of the strategy adopted so far can be seen in the **increased opening up of the market**: between 2014 and 2021 the share of the ex-incumbent in terms of train-kilometres decreased from 62% to 46%[14], while when considering relations with the insular South it fell from 73% to 53% (2020 figure), against an increase in the number of active freight railway undertakings (24). Unfortunately, these good sectoral results have produced only slight variations as far as the modal shift is concerned: after an increase from 13.2% to 14.7% recorded in Italy between 2014 and 2016 due to the incidence of rail freight on inland transport (road + rail + inland waterways), this decreased to 11.9%, against a European average value of 17%.

FIGURE I.7.1.4: TOTAL AND INTERMODAL RAIL CARGO, 2019-2020-2021 TREND.



Source: Eurostat – modal split of freight transport.

This derives, in the first place, from the **difficulty in reducing the use of road transport** in a reality such as the Italian one, where the vast majority of road transport is already carried out within 300 kilometres, being in fact largely 'incompressible', i.e., it cannot be shifted to rail or other non-road modes of transport. Secondly, road haulage is also undergoing a gradual transformation into a more efficient organisation, evidenced by the consolidation of companies in the sector and the specific measures and regulations adopted, such as, for example, the change in size limits for articulated trucks, recently increased to 18 metres in length.

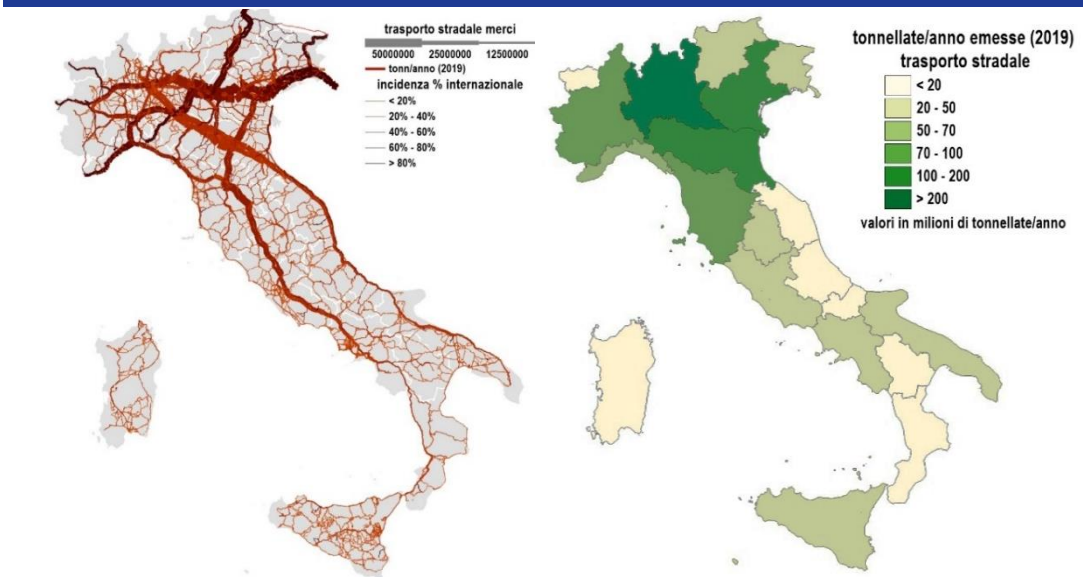
ROAD TRANSPORT

According to official surveys on road freight transport and the integration of data performed using mathematical models, the **total annual traffic of goods on Italian roads amounts to more than 1.05 billion tonnes**. As shown in Figure I.7.1.5, which shows both the absolute volume of traffic in tonnes (thickness) and the percentage of international traffic on the total (colour scale), most traffic occurs along motorway routes in the North, with a significant incidence of international

[14] Overall figure IF FS Group.

traffic in the North-East. The Italian region that produced (emitted) the most tonnes on road is Lombardy, with over 200 million tonnes, or about one fifth of the national total, followed by Emilia-Romagna and Veneto. Overall, more than 65% of the total road freight traffic in tonnes is generated in Northern Italy.

FIGURE I.7.1.5: FREIGHT ROAD TRAFFIC IN ITALY (2019): FLOWS AND EMISSIONS AT REGIONAL LEVEL.



Source: processing by RAM S.p.A. based on a mathematical model of the University of Naples Federico II - Department of Civil, Building and Environmental Engineering.
Note: transport with vehicles over 3.5 tonnes.

Focusing on the motorway network managed by AISCAT concessionaires alone, heavy vehicle traffic[15] in 2019 amounted to 19.96 billion vehicle·km, compared to 19.59 billion vehicle·km in 2018 (+1.9%). In 2020, total motorway traffic fell by 27.5%, with a 12.4% reduction in heavy traffic, values much higher than those recorded by the corresponding rail traffic. Similar values were recorded on the ANAS network, where heavy traffic fell by around 10% in 2020, against an overall drop of 25%.

In 2021, there was a strong upturn in overall traffic and heavy traffic in particular, with an increase of 15% on the motorway network and 10% on the ANAS network.

MARITIME TRANSPORT

Port cargo transport estimates for 2021[16] saw a recovery in traffic following the sharp decline that characterised the sector in 2020 and the two previous years. **In 2021, in fact, the entire cargo transport sector (expressed in tonnes) grew by 8.7%, reaching 474.4 million tonnes**, against 436.4 million tonnes in the previous year and 479.2 million tonnes in 2019. This trend, as already reported, was affected

[15] Both two-axle motor vehicles with a height from the ground at the front axle of more than 1.30 m and all motor vehicles with three or more axles are classified as such.
[16] The port data-set updated to 2021 was calculated by summing up the complete 2021 data available for some of the port authorities (AdSPs) and, for the others, by adding the trend change projections acquired in the last available month.

by the sharp drop caused by the pandemic and the particular repercussions that the emergency has caused and is still causing for international trade. Seen in a longer-term perspective, the compound annual growth rate referred to the period 2014-2021 stands at 0.3%, which represents a 2.1% growth in trades over the same period of time.

As far as passengers are concerned, it can be observed that while in 2019 the major Italian ports had handled 54.83 million passengers, in 2020 the number of passengers more than halved (25.96 million), whereas in 2021 it is estimated that there will be a recovery of a few percentage points, with a flow of 27.54 million passengers. Particularly negative was the approximately 92% drop in cruise passengers recorded in 2020, with a -6.2% CAGR recorded between 2014 and 2021, for an overall change of -36.3%.

TABLE I.7.1.3: 2014-2021 PORT CARGO AND PASSENGER TRANSPORT

Port transport	2014	2017	2018	2019	2020	2021 (estimate)	Change %		CAGR 2021 - 2014
							2021-2020	2021-2019	
Liquid bulk [Mln t]	170,66	187,82	184,01	179,55	156,87	161,36	2.8%	-10.1%	-0.8%
Solid bulk [Mln t]	72,71	66,62	65,41	58,76	49,22	57,36	16.5%	-2.4%	-3.3%
Freight in containers [Mln t]	108,33	115,11	111,07	111,14	114,30	115,43	1.0%	3.9%	0.9%
Ro-Ro freight [Mln t]	85,94	106,43	108,95	106,38	99,62	119,40	19.9%	12.2%	4.8%
Other freight [Mln t]	23,37	21,66	21,63	23,37	16,38	20,80	26.9%	-11.0%	-1.7%
Total freight traffic [Mln t]	**461,0**	**497,6**	**491,1**	**479,2**	**436,4**	**474,4**	**8.7%**	**-1.0%**	**0.4%**
Containers [TEU*1000]	10 223	10 651	10 606	10 770	10 889	11 436	5.0%	6.2%	1.6%
Total passengers [Mln pax]	**43,25**	**52,02**	**53,16**	**55,91**	**25,96**	**27,54**	**6.1%**	**-50.7%**	**-6.2%**
Cruise passengers [Mln pax]	10,02	9,85	10,78	11,97	0,64	0,97	51.8%	-91.9%	-28.3%
Non-cruisers [Mln pax]	33,23	42,17	42,38	43,95	25,32	26,57	5.0%	-39.5%	-3.1%
Local (< 20 nm) [Mln pax]	18,43	25,14	25,04	26,31	15,73	12,31	-21.7%	-53.2%	-5.6%
Ro-Pax [Mln pax]	14,80	17,03	17,35	17,64	9,59	14,26	48.7%	-19.2%	-0.5%

Source: RAM processing on AdSP and ESPO data. Estimate for 2021

Domestic **container traffic** in 2021 is estimated at 11.4 million TEU (+5.4% over 2020), the highest figure in recent years. The growth of the sector, which experienced a very slight downturn in 2018, is thus confirmed in the following three years. The pandemic crisis, the discrepancy between consumer demand and transport supply and the consequent increase in maritime freight rates do not appear to have particularly affected the container sector in Italy, although it should be mentioned that a clear upturn in traffic expressed in TEUs is not matched by an equally strong trend in container traffic in tonnes, which indicates an incorrect management of the empty container fleet.

In particular, last year the growth was concentrated on the North Tyrrhenian ports, which for the first time since the surveys exceeded 5 million TEU handled, with an estimated growth of 22.1% compared to the previous year. This trend, against the decline of the North Adriatic and South and Islands clusters, meant that the North Tyrrhenian ports reached a market share of 48%, confirming the strategic importance of the area for the container sector in Italy.

TABLE I.7.1.4: 2014-2021 CONTAINER TRANSPORT, MACRO-AREAS

Macro-area (KTEU Container)	2014	2017	2018	2019	2020	2021 (estimate)	2021-2020	2021-2019	CAGR 2021-2014
North Tyrrhenian	4 138.7	4 926.4	4 966.1	4 950.3	4 677.0	5 544.8	22.1 %	12.0 %	4.3 %
North Adriatic	1 184.6	1 451.8	1 575.2	1 601.8	1 500.7	1 431.6	-6.1%	-10.6 %	2.7 %
Central Tyrrhenian	816.1	1 059.0	1 145.0	1 207.4	1 128.1	1 154.7	3.3%	-4.4%	5.1 %
Centre-South Adriatic	200.8	238.2	227.3	258.9	229.9	226.4	-1.9%	-12.5 %	1.7 %
South + Islands	3 882.8	2 975.9	2 692.7	2 751.6	3 353.3	3 078.3	-6.8%	11,9 %	-3.3 %
Total Italy	**10 223.1**	**10 651.2**	**10 606.2**	**10 770.0**	**10 889.1**	**11 435.8**	**5.4%**	**6,2%**	**1.6 %**

Source: RAM processing on AdSP and ESPO data. Estimate for 2021.

Looking at a longer time span, the Northern Adriatic and Central Tyrrhenian clusters also gained market share, the Central-Southern Adriatic remained stable, and the South and the Islands area lost ground. In particular, in the years from 2014 to 2021 the area that grew at a faster rate was the Central Tyrrhenian area (CAGR +5.1%), even if in absolute terms it only handled 1.15 million TEU. The North Adriatic ports grow at a slower pace (CAGR +2.7% from 2014), but with higher absolute values (1.5 million TEU).

TABLE I.7.1.5: INCIDENCE OF MACRO-AREAS ON TOTAL NATIONAL CONTAINER TRAFFIC, 2014-2021

Macro-area	CONTAINER (% incidence)					
	2014	2017	2018	2019	2020	2021
North Tyrrhenian	40%	46%	47%	46%	43%	48%
North Adriatic	12%	14%	15%	15%	14%	13%
Central Tyrrhenian	8%	10%	11%	11%	10%	10%
Centre-South Adriatic	2%	2%	2%	2%	2%	2%
South and Islands	38%	28%	25%	26%	31%	27%
Total Italy	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: RAM processing on AdSP and ESPO data. Estimate for 2021

The drop observed in southern Italian ports is mainly due to the structural crisis of transhipment. This cluster is in fact affected both by competition from other European and non-European Mediterranean ports and by the increase in transhipment shares of ports with a gateway vocation, which caused the ports of Gioia Tauro and Taranto to collapse in the pre-pandemic years, bringing the South and Islands area's handled traffic down from 3.8 million TEU in 2014 to 2.7 million TEU in 2019, with only a partial recovery occurring in the last two years. In terms of market share, the area lost seven points from 2014 to 2021, standing at 31% of the national cargo traffic. Despite a downward trend in the cluster, a counter-trend has been observed in recent years, particularly due to the Gioia Tauro port resuming its activities.

In 2021, **liquid bulk** remained the maritime transport sector to handle the most freight with 161.4 million tonnes, which is down sharply from the 2017 figure, the highest in recent years, when traffic amounted to 187.8 million tonnes. Last year's figure was strongly influenced by the downturn experienced by the transport sector due to the pandemic: despite a slight recovery in 2021 (+2.8% year-on-year), traffic fell by 10.1% compared to 2019%.

TABLE I.7.1.6: LIQUID BULK CARGO TRANSPORT, MACRO-AREAS, 2014-2021

Macro-area	LIQUID BULK (Mln T)						2021-2020	2021-2019	CAGR 2021-2014
	2014	2017	2018	2019	2020	2021			
North Tyrrhenian	31,7	31,8	33,1	32,9	26,0	25,5	-1.7%	-22.5%	-3.0%
North Adriatic	53,7	57,1	57,2	57,0	50,3	50,5	0.4%	-11.4%	-0.9%
Central Tyrrhenian	9,6	10,3	10,6	10,7	8,2	8,5	3.1%	-20.4%	-1.7%
Centre-South Adriatic	7,9	7,7	8,0	7,9	6,6	7,3	11.4%	-6.8%	-1.0%
South + Islands	67,8	80,9	75,1	71,1	65,8	69,5	6.9%	-2.2%	0.4%
Total Italy	**170,7**	**187,8**	**184,0**	**179,6**	**156,9**	**161,4**	**2.8%**	**-10.1%**	**-0.8%**

Source: RAM processing on AdSP and ESPO data. Estimate for 2021

The drop experienced over the last three years was distributed over all areas, although more intense for the North and Central Tyrrhenian clusters (both around 20%). Over the 2014-2021 period, with the exception of the South-Islands area which showed a slightly positive change, all areas saw a decline in the volume of liquid bulk traffic, with an average annual reduction of 3% and 1.7% for the North and Central Tyrrhenian clusters respectively.

The trend in liquid bulk cargo transport confirms that the related market is largely mature and fairly stable, so much so that over the last five years only slight changes in market shares were observed. The South-Islands areas remain the main areas for transport, with a share of 40% on total national transport, driven by the large imports of energy resources in the Southern AdSPs, while in the Northern Adriatic the port of Trieste confirms its dominant role.

TABLE I.7.1.7: INCIDENCE OF MACRO-AREAS ON TOTAL NATIONAL LIQUID BULK TRAFFIC, 2014-2021

Macro-area	LIQUID BULK % incidence					
	2014	2017	2018	2019	2020	2021
North Tyrrhenian	19%	17%	18%	18%	17%	16%
North Adriatic	31%	30%	31%	32%	32%	31%
Central Tyrrhenian	6%	5%	6%	6%	5%	5%
Centre-South Adriatic	5%	4%	4%	4%	4%	5%
South + Islands*	40%	43%	41%	40%	42%	43%
Total Italy	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: RAM processing on AdSP and ESPO data. Estimate for 2021.
* In order to make the data comparable over the years, a number of ports of call of the AdSP of the Strait of Messina have not been included.

In 2021, **dry bulk traffic** recovered sharply, reaching 57.4 million tonnes (+11.1% compared to 2020), although still 2.4% lower than that recorded in 2019. Furthermore, the latter figure was the final point of a downward parabola that had already begun in 2016, when traffic totalled 74.4 million tonnes. Excluding the Central-Southern Adriatic area, the 2021 recovery was recorded across the entire

peninsula and mainly affected the North Adriatic, Central Tyrrhenian and South Island clusters.

During the period from 2014 to 2021, traffic decreased by 32%, that is, by 15.3 million tonnes. Over this period, the Central Tyrrhenian cluster showed a negative performance, losing 6.6 million tonnes of cargo handled in absolute terms, -11.6% in CAGR. This trend was already evident in 2019, when the number of tonnes dropped by more than two million, mainly due to the collapse of movements recorded in the port of Civitavecchia. In terms of market share, the Central Tyrrhenian area fell to 8% in terms of national 2021 handling, while the Northern Adriatic area gained nine percentage points, the only area to show a slightly positive CAGR (+0.1%) in the eight years considered.

BLE I.7.1.8: DRY BULK CARGO TRANSPORT, MACRO-AREAS, 2014-2021

cro-area	DRY BULK (Mln T)						2021-2020	2021-2019	CAGR 2021-2014
	2014	2017	2018	2019	2020	2021			
th Tyrrhenian	10,8	9,5	9,4	9,3	5,9	6,9	7.1%	-25.5%	-6.1%
th Adriatic	21,3	24,6	24,3	22,8	17,7	21,5	18.6%	-5.5%	0.1%
ntral Tyrrhenian	11,4	6,7	6,1	4,0	3,7	4,8	11.7%	19.9%	-11.6%
ntre-South iatic	8,9	6,9	6,6	7,0	6,5	6,1	-4.4%	-12.9%	-5.3%
uth + Islands*	20,3	19,0	19,2	15,7	15,5	18,0	12.2%	14.9%	-1.7%
al Italy	**72,7**	**66,6**	**65,4**	**58,8**	**49,2**	**57,4**	**11.1%**	**-2.4%**	**-3.3%**

urce: RAM processing on AdSP and ESPO data. Estimate for 2021.
n order to make the data comparable across the years, some of the ports of call of the AdSP of the Strait have not been included in the 21 and 2021 counts.

TABLE I.7.1.9: INCIDENCE OF MACRO-AREAS ON TOTAL NATIONAL DRY BULK TRAFFIC, 2014-2021

Macro-area	RINFUSE SOLIDE Percentage incidence					
	2014	2017	2018	2019	2020	2021
North Tyrrhenian	15%	14%	14%	16%	12%	12%
North Adriatic	29%	37%	37%	39%	36%	38%
Central Tyrrhenian	16%	10%	9%	7%	7%	8%
Centre-South Adriatic	12%	10%	10%	12%	13%	11%
South + Islands*	28%	29%	29%	27%	32%	31%
Total Italy	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: RAM processing on AdSP and ESPO data. Estimate for 2021.
* In order to make the data comparable across the years, some of the ports of call of the AdSP of the Strait have not been included in the 2021 and 2021 counts.

In 2021, the **Ro-Ro sector** handled 119.4 million tonnes of cargo, an increase of 27.4% compared to the previous year and of 12.2% compared to 2019. The 2021 figure is the highest in recent years, higher even than the 2018 record, allowing the Ro-Ro market to become the second largest sector in terms of tonnes handled in maritime freight, ahead of containers. The 2021 growth affected all areas, especially the Central South Adriatic and the North Tyrrhenian, which, however, in absolute terms, has a significantly higher handling value.

TABLE I.7.1.10: RO-RO TRAFFIC, MACRO-AREAS, 2014-2021 (mln. tonnes)

Macro-area	Ro-Ro (mln. T)						2021-2020	2021-2019	CAGR 2021-2014
	2014	2017	2018	2019	2020	2021			
North Tyrrhenian	24,8	34,0	36,6	36,4	31,3	39,5	38.9%	8.4%	6.9%
North Adriatic	11,5	12,4	12,4	10,2	10,0	11,5	16.2%	13.2%	0.0%
Central Tyrrhenian	16,4	18,7	18,7	18,9	17,3	20,4	19.2%	7.9%	3.1%
Centre-South Adriatic	6,9	10,7	10,4	10,4	9,1	13,8	74.0%	32.7%	10.4%
South + Islands*	26,4	30,6	30,9	30,5	31,9	34,3	12.0%	12.3%	3.8%
Total Italy	**85,9**	**106,4**	**109,0**	**106,4**	**99,6**	**119,4**	**27.4%**	**12.2%**	**4.8%**

Source: RAM processing on AdSP and ESPO data. Estimate for 2021.
* In order to make the data comparable across the years, some of the ports of call of the AdSP of the Strait have not been included in the 2021 and 2021 counts.

The drop in 2020 and the strong recovery in 2021 have reshaped the general trend of the sector, which remains very positive also in the medium/long term: over the last eight years, in fact, Ro-Ro traffic has recorded a CAGR of +4.8%. Excluding the North Adriatic ports, affected by the drop in 2019 following the decrease in Turkish traffic in the port of Trieste, growth is substantially distributed across all clusters, with greater increases in the North and South Adriatic areas.

In terms of percentage incidence, the North Tyrrhenian area's supremacy is confirmed (it had already overtaken the South-Islands area in 2014), standing at 33% in 2021. The North Adriatic area dropped by three percentage points and the South-Islands by two, although the latter gained, in absolute terms, more than 7.8 million tonnes of cargo.

TABLE I.7.1.11: RO-RO TRAFFIC, MACRO-AREAS, 2014-2021 (% INCIDENCE)

Macro-area	Ro-Ro % incidence					
	2014	2017	2018	2019	2020	2021
North Tyrrhenian	29%	32%	34%	34%	31%	33%
North Adriatic	13%	12%	11%	10%	10%	10%
Central Tyrrhenian	19%	18%	17%	18%	17%	17%
Centre-South Adriatic	8%	10%	10%	10%	9%	12%
South + Islands	31%	29%	28%	29%	32%	29%
Total Italy	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: RAM processing on AdSP and ESPO data. Estimate for 2021.

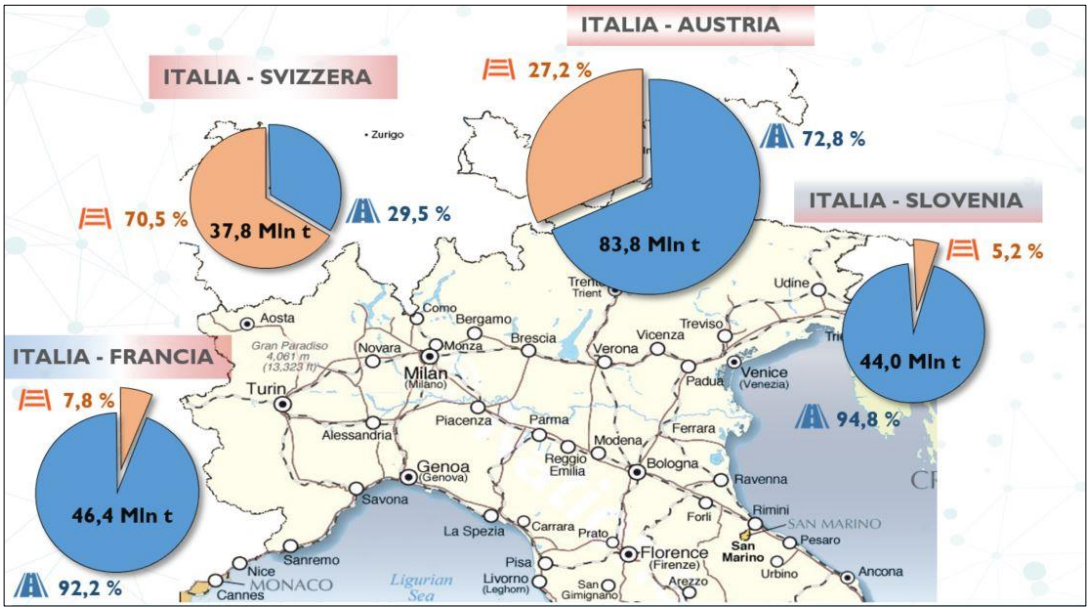
FREIGHT TRAFFIC ON CROSS-BORDER ALPINE MOUNTAIN PASSES

Freight traffic flows on the roads and rails crossing the Italian Alpine border remain extremely substantial. **In 2019, freight traffic through the Alpine crossings amounted to 216.1 million tonnes**, of which 48.2 million tonnes on the IT-Slovenia axis, 83.8 million tonnes on the IT-Austria axis, 37.8 million tonnes on the IT-Switzerland axis and 46.4 million tonnes on the IT-France axis. In 2019, traffic increased by 1.2%, raising the issue of possible future saturation of transport infrastructure capacity. In particular, the risk of saturation arises with regard to the

Brenner Pass, which represents the primary flow node for national traffic to/from Europe, handling 24.8% of Italian trade across the Alps (53.7 million tonnes).

As regards the modal split of freight traffic along the cross-border passes in Italy, there is a particularly clear imbalance in favour of road transport, with 74.2% of traffic being carried by road (around 160.4 million tonnes) and 25.8% by rail (around 55.7 million tonnes), with a deteriorating trend compared to 2018. On the IT-Austria axis, where the Brenner Pass is located, road traffic accounts for 72.8% of the total, compared with 27.2% of goods transported by rail, unlike on the IT-Switzerland axis, where rail accounts for 70.5% of traffic, thanks to the substantial federal investments made to implement the AlpTransit project (around EUR 19 billion).

FIGURE I.7.1.6: FREIGHT TRAFFIC ALONG ALPINE CROSSINGS, 2019



Source: RAM S.p.A. processing on data from Alpinfo, Statistical Office of the Republic of Slovenia; 2019 estimates on Tarvisio and Slovenia.

AIR TRANSPORT

Cargo transported by air in 2020 in Italy amounted to 841,901 tonnes, a decrease of 23.7% compared to 2019, accompanied by a drastic drop (-72.6%) in passengers. On the other hand, estimates for cargo traffic in 2021 showed a growth of 28.6% compared to 2020, a level nevertheless 1.9% lower than in 2019. In particular, in the first half of 2021, air traffic handled 506,753 tonnes (+37.5% compared to 2020).

In Italy, the following airports handle a total of more than 97% of the total tonnes: Milan Malpensa, Rome Fiumicino, Bergamo, Bologna, Venice, Brescia, Rome Ciampino, Pisa, Naples, Ancona and Taranto-Grottaglie. Some national airports experienced a significant increase in cargo traffic in the first six months of 2021 despite the pandemic: for example, Milan Malpensa recorded an increase of 33.1% over 2019 and 60.3% over 2020. Traffic between 2021 and 2020 was positive for all markets: domestic +39.8%, international EU +18.4% and international non-EU +51.6%

(international +37.3%) (source: ENAC, 2021). The European figure is even more significant if we take into account that the values were affected by Brexit: in fact, from 1 January 2021 flights to and from the United Kingdom are considered non-EU, while in previous years they belonged to the EU category.

In 2020, arrivals at Italian airports were 45.2% of the total, while the remaining 54.8% were departures. In the domestic market the shares of arrivals and departures were nearly equal (48.8% and 51.2%), while in the international market exports (departures) amounted to 55.2% of the total. Compared to the reference markets, in 2020 exports with EU destination amounted to 32.4%, those to non-EU European countries to 13.6%, those to non-EU countries to 54.1%, among which Asia accounted for more than 35% and America for more than 13% (source: ISTAT, 2022).

In the European market, Italy ranked sixth in 2020, handling 5.6% of the EU-27 total (13,752,625 tonnes of freight and mail) with a decrease of 8.7% compared to 2019. Germany, with 4,718 million tonnes, ranked first (34.3%) with a 3.2% loss on the previous year, followed by France with 14.1% (-18.3% on 2019), Belgium with 12.1% (+13.2% on 2019), the Netherlands with 11.6% (-6.5% on 2019), Luxembourg with 6.6% (+5.9% on 2019) (source: Eurostat, 2022).

In 2020, cargo traffic in the Italian airport system mainly concentrated in four regions: Lombardy (72.3%), Lazio (11.4%), Emilia-Romagna (5.2%) and Veneto (4.9%). 91% of Italian cargo traffic was concentrated in six airports: Milan Malpensa (61.4%), Rome Fiumicino (9.1%), Bergamo Orio al Serio (6.1%), Bologna (5.1%), Venice (4.9%) and Brescia (4.7%); all other airports accounted for less than 3%. In 2020, Milan Malpensa was the only Italian airport in the European top ten, ranking eighth, with total cargo handled amounting to about 26% of the European airport ranked first, Frankfurt/Main (Germany), while Rome Fiumicino placed 26th, with about 3.8% of the total handled by Frankfurt.

An analysis of the geographical clusters/areas[17] of air freight traffic in 2020 confirmed the leading role of the North-West area, handling 72.6% of total traffic. The Central area, on the other hand, handled 11.4%, the Centre-North 7.4% and the North-East 4.9%. The remaining southern and island areas accounted for less than 1%. Between 2019 and 2020, all areas recorded substantial drops, except for Western Sicily and Calabria. Between 2014 and 2020, the areas with a positive trend were almost all southern and insular areas, except for the North-Central Area (1.4%): in fact, the Mediterranean/Adriatic area recorded a CAGR of 24.1%, the Western Sicily area of 9.2%, the Sardinia area of 6.6% and the Calabria area of 3.7%.

In the first six months of 2021, Milan Malpensa was the airport with the most traffic in the North-West area, having handled 516,740 tonnes of cargo: almost 12,000 for the domestic market, 93,000 for EU international traffic and over 254,000 for non-EU international traffic. The cargo traffic of the airport of Brescia amounted to almost 15 thousand tonnes, that of Bergamo to 13,736 tonnes (source: ENAC, 2021). In the North-East area, the airport of Venice continued to handle almost all air cargo demand, with 18 thousand tonnes (3.5% of the national total) almost entirely destined for the European market.

[17] North-West Area: Milan Malpensa, Milan Linate, Turin, Bergamo, Genoa, Brescia, Cuneo; North-East Area: Venice, Verona, Treviso, Trieste; North-Central Area: Bologna, Pisa/Florence (with single management), Rimini, Parma, Ancona; Central Italy Area: Rome Fiumicino, Rome Ciampino, Perugia, Pescara; Campania Area: Naples, Salerno; Mediterranean/Adriatic Area: Bari, Brindisi, Taranto; Calabria Area: Lamezia Terme, Reggio Calabria, Crotone; Eastern Sicily Area: Catania, Comiso; Western Sicily Area: Palermo, Trapani, Pantelleria, Lampedusa; Sardinia Area: Cagliari, Olbia, Alghero.

TABLE I.7.1.12: 2014-2021 AIR FREIGHT TRAFFIC BY MACRO-AREA

MACRO-AREA	2015	2016	2017	2018	2019	2020	QUOTA %	% 2020-2019	2021 January-June
North-West	686,52	715,182	772,814	739,752	721,755	610,85	72.6 %	-15%	388,815
North-East	56,378	62,873	65,168	72,396	65,402	41,469	4.9%	-37%	18,771
Centre-North	56,656	64,446	74,003	71,447	69,069	62,582	7.4%	-9%	28,582
Centre	160,82	176,770	202,993	224,210	213,250	95,699	11.4 %	-55%	54,955
Campania	10,728	10,724	11,069	11,691	11,750	9,454	1.1%	-20%	5,132
Calabria	1,459	1,219	1,026	1,032	1,269	1,870	0.2%	47%	730
Mediterranean Adr.	2,028	2,222	8,016	8,656	9,872	7,563	0.9%	-23%	2,097
Western Sicily	1,212	449	381	407	1,197	2,580	0.3%	115%	1,356
Eastern Sicily	6,220	6,380	6,691	6,419	5,749	4,919	0.6%	-14%	3,106
Sardinia	3,511	3,173	3,058	3,743	4,349	4,926	0.6%	13%	3,210
TOTAL	**985,525**	**1.043,437**	**1,145,219**	**1,139,753**	**1,103,664**	**841,901**		**-24%**	**506,754**

Source: RAM processing on Assaeroporti 2022 and ENAC 2021 data.

As regards the Centre-North area (Bologna, Florence, Pisa, Ancona, Parma and Rimini) the reference airports are Bologna (18,000 tonnes), Pisa (almost 7,000) and Ancona (3,000), which together cover 5.6% of the national total in the first six months of 2021, showing significant growth compared to the previous year and a CAGR for the 2014-2020 period of 1.4%. The Pisa airport alone shows a significant increase compared to 2019 (+13.4%), while in 2020 the Bologna airport recorded a decrease of 11.2% and the Ancona airport a decrease of 20.5%), while the Tuscan airport remained stable (-0.1%).

Air traffic in the Centre area is concentrated in the two airports of Rome (Fiumicino and Ciampino), which in the first half of 2021 account for 10.8% of the national total (11.4% in 2020). The reference market for Fiumicino is the international non-EU market, while for Ciampino it is the European market. Fiumicino recorded a decrease of -55% in 2020, while Ciampino managed to increase its traffic by 5.1%.

The airports of Bari and Taranto are the two active hubs for cargo in the Mediterranean/Adriatic area (Bari, Brindisi, Foggia and Taranto-Grottaglie), although their volumes are marginal compared to the national figure (7,563 tonnes, equal to 0.9%), even though between 2014 and 2020 their CAGR was 24.1%, despite the sharp drop recorded in the last two years. In Campania, the Naples Capodichino airport handled 9,454 tonnes (1.1% of the national total) in 2020, a decrease of 19.5% on 2019. In the first six months of 2021, the airport saw significant growth compared to both 2020 (+29%) and 2019 (+9%), with the national market as its reference market (98.9% of freight traffic at the Naples airport).

The cargo airports of reference for the Sicilian areas are Palermo and Catania, with very small percentages compared to the national figure (0.3% and 0.6%, respectively), despite the recovery in the first half of 2021 (Palermo +33.6%, Catania +32.6%). Finally, the main airport in the Sardinia area is Cagliari, with significant quantities of goods handled compared to the other island airports, but still marginal

compared to the national figure (around 0.6%). The reference market, also in the case of Olbia and Alghero, is the national one.

TABLE I.7.1.13: 2000-2020 TRENDS IN NATIONAL FREIGHT DEMAND BY MODE OF TRANSPORT

SETTORE		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
TRASPORTO STRADALE (a)	mld tonn-km	130,85	134,26	114,74	101,38	102,32	93,71	95,51	92,30	99,12	104,05	114,42	103,99
	quota %	62,8%	61,9%	57,7%	55,5%	56,5%	52,9%	53,8%	50,6%	51,5%	53,0%	55,9%	56,5%
TRASPORTO FERROVIARIO (b)	mld tonn-km	27,51	28,22	29,26	29,88	28,63	29,31	29,57	32,31	32,13	32,00	31,01	28,10
	quota %	13,2%	13,0%	14,7%	16,4%	15,8%	16,6%	16,7%	17,7%	16,7%	16,3%	15,1%	15,3%
TRASPORTO MARITTIMO (c)	mld tonn-km	49,25	53,29	53,85	50,37	49,20	52,93	51,21	56,78	60,07	59,06	58,03	51,18
	quota %	23,6%	24,6%	27,1%	27,6%	27,2%	29,9%	28,9%	31,1%	31,2%	30,1%	28,4%	27,8%
TRASPORTO AEREO	mld tonn-km	0,86	1,01	1,03	0,98	0,99	1,05	1,09	1,17	1,27	1,26	1,22	0,92
	quota %	0,4%	0,5%	0,5%	0,5%	0,5%	0,6%	0,6%	0,6%	0,7%	0,6%	0,6%	0,5%
TOTALE	**mld tonn-km**	**208,47**	**216,79**	**198,88**	**182,60**	**181,14**	**177,00**	**177,38**	**182,55**	**192,58**	**196,37**	**204,67**	**184,19**
	var. %	**-4,9%**	**4,0%**	**-8,3%**	**-8,2%**	**-0,8%**	**-2,3%**	**0,2%**	**2,9%**	**5,5%**	**2,0%**	**4,2%**	**-10,0%**

Note: this includes freight traffic performed by national carriers on domestic routes whose origin and destination is within Italian territory; for rail traffic, it also includes international traffic carried out on national territory.
(a) road haulage of at least 50 km; (b) transported goods do not include the weight of empty private wagons and single locomotive travel; (c) includes sea and inland waterway navigation.

Source: processing by the STM of the MIMS on data from the National Account for Sustainable Infrastructures and Mobility.

I.7.2 THE CHALLENGES OF GLOBAL CHAINS IN 2020-21 AND THE NEEDS OF THE ECOLOGICAL TRANSITION

While 2021 saw a strong economic recovery everywhere, logistics, more than other sectors, found itself caught between the rapid upturn in demand and the hardships generated by the pandemic crisis: this resulted in supply shortages and sharp price increases. One of the main reasons for these phenomena is the uneven reduction in demand for mobility between the different geographical areas of the planet. The lockdowns, which marked the first response to the pandemic, occurred at different times geographically: they started in the Far East, especially in China, and were implemented in the West two or three months later, when re-openings were already underway in the countries first hit by the virus. This asynchrony disrupted the functioning of the transport chains, leading to an abnormal distribution of means, causing not only a reduction in transport capacity, but also a dysfunctional dislocation of ships and containers, which made it impossible to respond adequately to the gradually recovering demand for mobility.

On the other hand, health authorities, taken aback by the pandemic, closed national borders and prohibited infected seafarers from disembarking, in many cases impeding the necessary replacement of crews and thus leading to a reduction in the supply of maritime transport. Even in mid-2021, more than a year after the start of the pandemic, such restrictions and the shortage of international flights hindered the replacement of thousands of seafarers, with serious repercussions for shipping.

These two phenomena led to a **drastic drop in transport reliability**, to the point where, while in May 2020 overall schedule reliability was 75% of normal values,

by May 2021 reliability had plummeted to 39%, with an **average delay of ships not on schedule being six days**. Even in the first weeks of 2022, waiting times in North American ports exceeded one week. This was accompanied by the **shutdown of some strategic nodes and passages in the shipping network**. In May 2021, the month-long closure of the port of Yantian in China resulted in a huge setback. Although less disruptive, the stranding of the 20,150 TEU container ship Ever Given in the Suez Canal during March 2021 led to delays for ships in service between Europe and the East and created a dramatic port congestion: a number of vessels had to be rerouted around the Cape of Good Hope, adding up to 7,000 miles to the route and causing a huge congestion in the port of Cape Town where, as of early 2022, waiting times for container services still exceed 15 days.

Finally, the disruption of regular transport flows was made even worse by the **carriers' attempt to make up for lost time by skipping intermediate stops**, which were of secondary importance to them, and by increasing the number of departures without waiting for their turn to load, resulting not only in the failure to load departing goods, but also in the diversion to different ports for ships arriving with goods.

The disruptions that originated over long routes had **inevitable repercussions on land transport and logistics, which faced a shortage of products, but also an excess of empty containers**. At the same time, during the pandemic, there was a marked increase in e-commerce: online retail sales, which amounted to USD 4.28 billion globally in 2020 and are expected to grow to USD 5.4 billion in 2022, resulted in people expecting fast and widespread delivery, which put a strain on logistics structures and in particular on storage facilities and the last-mile delivery network.

The first response to the shortage of supply and the need to reduce emissions is to increase efficiency: in particular, the challenge lies in reducing the so-called 'transport of air', i.e., the 'non-goods' transported. The asymmetry of flows, and even more so the lack of information and agreements between operators keep load factors low, both at sea and in land transport. Therefore, **increasing the load factor must become the key parameter for assessing the sustainable development of the sector**. A major contribution must come from the deployment of intelligent transport planning systems and telematics, enabling operators to optimise the transport of goods, planning routes and deliveries, using different modes, optimising flows and usage levels of vehicles and infrastructure. This cannot be accomplished by the private sector alone, but requires public infrastructure, and not only physical infrastructure. In addition to data networks, **protocols for the exchange of information are needed, as well as a regulatory framework to balance the confidentiality of business information with the collective interest in the efficiency, both economic and environmental, of logistics chains**.

The transport and logistics sector is a labour-intensive field, with a concentration of less-qualified professional profiles: according to the most recent estimates[18], a total of 188,500 workers will be needed in the sector over the five-year period from 2021 to 2025, 21% of which will be unskilled workers while no less than 35% (84,500) will be motor vehicle drivers. The difficulties in finding these professionals are well known and have been exacerbated by the pandemic. To

[18] Unioncamere, Excelsior Project, Employment and Training Information System.

overcome them, it is first and foremost necessary to guarantee, even in this sector, the working conditions generally recognised in the manufacturing sector.

For decades, just-in-time deliveries have been the focal point for supply chain managers. The major disruptions in supply chains have caused many companies serious consequences due to the non-supply of key items, even of low value. This is prompting companies to search for **a different balance between the need to reduce working capital and to have reserves capable of ensuring more reliable production processes**. This transformation opens up a new prospect for the storage sector, which will lack space to store those goods that until now have been treated mainly as flows.

The disruption of logistics chains is affected not only by the pandemic, but also, and above all, by a geopolitical conflict that is clearly becoming more and more severe. **This is forcing companies with long and complex supply chains to select their suppliers from a more restricted and, above all, more stable geographical area**. Thus, there is a tendency to relocate production in the country of origin (backshoring), but also to relocate the value chain within the macro-region of the country of origin (nearshoring).

II. UPDATES OF PLANNING TOOLS FOR SUSTAINABLE INFRASTRUCTURES AND MOBILITY

As described in Section I.2, the MIMS approach to planning, Programming and design of infrastructures and mobility in the medium to long term is based on the concept of a 'process plan', i.e., an innovative method with which to feed the decision-making process for the selection of infrastructures and mobility services over time. This approach to infrastructure selection and implementation starts from the transposition of the objectives and strategies of international (e.g., UN 2030 Agenda), European (Sustainable and Smart Mobility Strategy, Next Generation EU, 'Fit for 55', etc.) and national (National Sustainable Development Strategy, Ecological Transition Plan, National Integrated Energy and Climate Plan, etc.) planning, as well as sector-based documents, in order to guarantee coherence between policies and synergy between objectives, based on a medium-long term vision towards which to orient national infrastructure and transport policy. This vision outlines a unitary framework within which to draft the new General Transport and Logistics Plan (PGTL), intended as an integrated plan that will provide multi-sectoral guidelines and serve as a tool for interaction and integration between the various national planning areas.

Within the framework of the proposed planning process, the drafting of the PGTL is integrated with that of the sectorial strategic documents, understood as single-mode master plans which detail the choices for each transport mode. Starting from these considerations, this chapter provides a brief update, compared to what was done in the annex to the 2021 DEF, of the main planning tools taken into account for defining Italy's priorities for the development of sustainable infrastructures and mobility, pending the drafting and issuance of the PGTL envisaged by Italian Legislative Decree No. 50/2016 and subsequent amendments and integrations. In particular, first the main planning instruments (e.g., the PNRR and the Plan for the allocation of resources of the Development and Cohesion Fund) are presented, followed by the updates of the sectoral (single-mode) Plans related to the individual thematic axes.

II.1 THE NATIONAL RECOVERY AND RESILIENCE PLAN (PNRR) AND THE COMPLEMENTARY NATIONAL PLAN

Faced with the crisis induced by the pandemic, in 2020 the European Commission set up the Next Generation EU (NGEU), a fund to finance a very ambitious Programme of investments and reforms, with the dual objective of repairing the damage caused by the crisis and, at the same time, helping to strengthen the structural weaknesses of some member states. The reforms and investments, as presented in the NRPs of the individual Member States, shall

expedite the ecological and digital transition, improve the **training of workers**, and achieve greater **gender, territorial, and generational equity**.

The two main instruments of the NGEU are the Recovery and Resilience Facility (RRF) and the Recovery Assistance for Cohesion and Territories of Europe (REACT EU) Programme. In the PNRR, the NRP submitted to the European Commission by Italy, the resources allocated to the MIMS amount to a total of **EUR 40.014 billion**, broken down by funding source as follows:

- ***Next Generation EU: EUR 39.701 billion, of which EUR 18.505 billion for New Projects and EUR 6.166 billion for the FSC***;
- *React EU: an additional EUR 0.313 billion.*

All projects financed by the NGEU and React EU will have to be ready for tendering by 2023, completed by June 2026, and such that their effectiveness can be monitored and reported on, generating, among other things, growth and employment.

In addition to these two instruments, there are further complementary national resources (about EUR 20 billion), which are necessary to supplement the European ones, which are subject to a time frame for the completion of the infrastructures that is in some respects limited for those interventions that, due to their intrinsic complexity, could not be concluded in all their functional phases by June 2026 (the deadline set by the NGEU):

- ***National plan complementary to the PNRR referred to in Art. 1 of Italian Decree Law 59/2021****: EUR 9.760 billion;*
- ***Art. 4 of Italian Decree Law 59/2021****: EUR 10.350 billion.*

This results in a total amount of EUR **60.124** billion available for the PNRR of the MIMS from both European and national sources.

Lastly, an additional EUR 0.738 billion will be used to finance initiatives that the MIMS will carry out in cooperation with other ministries within the framework of the PNRR and that will be financed using the portion of the PNC allocated to these other ministries.

Consistent with the European approach, the Italian PNRR has adopted an innovative development vision, capable of stimulating the transformative resilience of the country-system to make it less vulnerable to future shocks, as envisaged by the European Green Deal and the UN 2030 Agenda. It is no coincidence that 71% of the resources of the PNRR of the MIMS are devoted to combating climate change, while 55% of the funds are earmarked for interventions in southern Italy.

Over the past year, following the approval of the Italian PNRR by the Council of the European Union, which took place on 13 July 2021 through the adoption of the Implementing Decision referred to in Article 20 of Regulation (EU) 2021/241, the implementation of the package of reforms and investments necessary to access the financial resources made available by the Next Generation EU (NGEU) Programme has begun. **Approximately 98% of the NGEU and PNC resources available to the MIMS have already been allocated** through specific Ministerial Decrees and through the 2020-21 update of the 2017-2021 RFI Programme Contract. The implementing bodies have launched the activities envisaged in the timetables to achieve the milestones and targets envisaged by the European Council's Execution Decision.

In this respect, **the MIMS is responsible for 57 milestones and targets, of which 47 are for investments and 10 for reforms**. For investments, the timeline profile of the number of targets and objectives mainly follows the typical implementation cycle of infrastructure investments, and is divided as follows: two in 2021, three in 2021, 11 in 2023, 12 in 2024, one in 2025 and 18 in 2026. For reforms, the deadlines are mainly set in the first years of the plan: five in 2021, four in 2022 and one in 2024. **The MIMS has achieved all seven milestones** (five for reforms, of which two were originally planned for 2022, and two for investments) **for 2021**, which concerned regulatory or administrative acts functional to the implementation of reforms and the allocation of resources for investments. In detail, these were:

- the reform to speed up authorisation procedures for projects in the LPT and MRT sectors;
- the reform of the approval process for the RFI Programme Contract (*Contratto di Programma*, CdP);
- the reform to speed up and streamline the approval process for railway projects;
- the transfer of the ownership of bridges and viaducts to the owners of Level I roads to ensure a more efficient process of risk monitoring and maintenance of existing structures;
- the drafting of new Guidelines for risk management and monitoring of existing bridges;
- the ministerial decree distributing the resources dedicated to supporting the electric bus supply chain in Italy M2C2-41 support for the electric bus supply chain;
- the ministerial decree distributing resources for investments in infrastructure for Special Economic Zones (SEZs).

The MIMS also began **monitoring those lines of action where, following the allocation of resources to the regions and local authorities, implementing bodies are expected to take further steps in order to effectively implement the measures**. This is particularly relevant for some lines of action such as, for example, the one dedicated to the 'green' renovation of local public transport buses, as well as for projects related to rapid mass transport and cycling.

In general, in order to follow in a structured manner the project management process of the plan of the MIMS, **in the coming months the information platform, developed in-house, will be fully operational**. Among other things, it provides early warning mechanisms to inform those in charge well in advance of the approaching deadline for each sub-phase, so that any corrective measures deemed necessary to meet the relevant deadlines can be taken. The platform is also designed to ensure transparency, sharing and participation of citizens and businesses in the activities of MIMS. In fact, key data and related key performance indicators (KPIs) will be published in an open manner.

Another 7 milestones (4 reforms and 3 investments) are expected to be achieved in 2022. As of 31 March 2022, the two milestones whose deadlines were set for the first quarter of 2022 (M2C4-27 Reform 4.1 Regulatory Simplification and Governance Strengthening for the Implementation of Investments in Water Supply

Infrastructure; M5C2-19 Investment 2.3 Innovation Programme for Housing Quality) and one milestone whose deadline was December 2022 (M3C2-1 Reform 1.1 Simplification of Procedures for the Strategic Planning Process in the Port Sector) were achieved.

II.2 THE PLAN FOR THE ALLOCATION OF THE RESOURCES OF THE DEVELOPMENT AND COHESION FUND FOR 2021-2027

The MIMS has prepared Strategic Guidelines for the allocation of the resources of the 2021-2027 Development and Cohesion Fund, consistent with the general provisions of the CIPESS and the contents of the Partnership Agreement for the European Structural and Investment Funds and the National Recovery and Resilience Plan, based on principles of complementarity and additionality of resources. The Guidelines are also consistent with the criteria determining thematic priorities for the use of 2021-2027 FSC resources, approved by the Infrastructure, Mobility and Territorial Governance Commission of the Conference of the Autonomous Regions and Provinces.

Among the thematic areas requiring funding there is the 'Sustainable Mobility and Infrastructure' area: special attention is paid to those sectors that have not received significant funding under the Next Generation EU Programme and the Complementary National Plan. In addition to the dimensions of complementarity or additivity with national planning, the Guidelines suggest assessing interventions according to criteria that favour:

1) the maintenance and safety of infrastructures;
2) the green dimensions;
3) the digital dimension;
4) large urban areas;
5) relations with inland areas.

Impacts on the six environmental objectives in the Taxonomy Regulation were also analysed.

Based on the Guidelines, the CIPESS ***resolution No. 1/2022*** *of 15 February 2022 apportioned EUR* ***4.680*** *billion for the 'Sustainable Mobility and Infrastructures' thematic area, with* ***EUR 3.689 billion being allocated for No. 41 flagship projects for the immediate start-up of works, EUR 0.582 billion for No. 164 local projects for the immediate start-up of works, and EUR 0.408 billion for No. 1 flagship project in the CIS Messina-Catania-Palermo railroad area****.*

The railway and water part are additional to the PNRR funds for infrastructure, while the road part is complementary. The road portion accounts for almost 50% of the total amount analysed, while the railway portion for just over 40%; the national implementing bodies (RFI, ANAS and A.d.S.P.) are responsible for implementing almost two-thirds of the total amount. The MIMS acted as the operational interface between the Ministry for Southern Italy and Territorial Cohesion and the regions where these works are to be carried out.

TABLE II.2.1: FSC ADVANCE BY GEOGRAPHICAL AREA, INTERVENTION LINE AND AMOUNT

INTERVENTION LINE/AREA	FLAGSHIP WORKS		LOCAL WORKS AND INTERVENTIONS		TOTAL	
	No.	*AMOUNT X 1000 €*	*No.*	*AMOUNT X 1000 €*	*No.*	*AMOUNT X 1000 €*
Centre-North	**15**	**697 590**	**11**	**40 865**	**26**	**738 455**
Roads	9	402 620	10	28 865	19	431 485
Railways	5	279 970	1	12 000	6	291 970
Others	1	15 000			1	15 000
South	**27**	**3 399 807**	**153**	**541 823**	**180**	**3 941 630**
Roads	16	1 564 027	94	348 917	110	1 921 944
Railways	9	1 387 000			9	1 387 000
Water	1	115 000	54	160 346	55	275 346
RMT	1	333 780	2	19 000	3	352 780
Others			3	13 560	3	13 560
Total	**42**	**4 097 397**	**164**	**582 688**	**206**	**4 680 085**

II.3 THE STRATEGIC RAIL MOBILITY DOCUMENT

The relationship between the manager of the national railway infrastructure and the Italian State is governed, according to Italian Legislative Decree 112 of 15 July 2015 and its updates, by a concession contract and one or more Programme contracts (*Contratto di Programma*, CdP). The CdPs are entered into for a minimum period of five years for the construction, within the country's development strategies, of the national railway infrastructure and to define the planning of investments (in certain cases provided for by specific legal provisions) relating to the maintenance, renovation and safety of the railway infrastructure.

These interventions must be included, as provided for in Art. 5 of Italian Decree-Law No. 152 of 6 November 2021 concerning the "Simplification of procedures concerning railway investments", in the Strategic Document for Passenger and Freight Rail Mobility (*Documento Strategico della Mobilità Ferroviaria Passeggiaria e Fregagliero*, DSMF). In particular, Art. 5 provides that, in order to make it easier and simpler to achieve the goals and objectives set out in the National Recovery and Resilience Plan (PNRR) referred to in Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021, and in Italian Decree-Law No. 59 of 6 May 2021, converted, with amendments, by Law No. 101/2021, as well as to reduce the time required for the realisation of railway investments, the MIMS shall prepare a strategic document, normally valid for five years, containing *"[...] an illustration of the needs for passenger and freight mobility by rail, of the activities for the management and strengthening of the level of maintenance and monitoring of the network, as well as the identification of the criteria for assessing the environmental, economic and social sustainability of the interventions and the necessary safety and resilience standards of the national railway infrastructure also with reference to the effects of climate change [...]"*.

The DSMF also contains a description of the strategic axes regarding rail mobility, with particular reference to *"[...] infrastructure safety and resilience Programmes, also in compliance with specific legal obligations; technological*

development Programmes to increase capacity and improve performance in relation to the first and second level of the National Integrated Transport System (SNIT) network; priority interventions on the lines, as well as priority interventions to be revised in terms of design; activities relating to the fund for the design of interventions and the relative directions for strategic priorities; identification of strategic priorities relating to last-mile connections for ports and airports; locating interventions, specifically indicating those to be implemented in the regions of southern Italy [...]; the strategic lines for the experimentation of technological and environmental innovations; the identification of the needs for maintenance and services for the railway infrastructure; the methodologies for assessing investments, with particular reference to environmental and social sustainability and accessibility for people with disabilities; the criteria for assessing the performance of the manager and the related sanctions [...]".

In December 2021, the MIMS drafted the DSMF, which was then forwarded to the competent parliamentary commissions and the Unified Conference pursuant to Article 8 of Italian Legislative Decree No. 281 of 28 August 1997, to obtain the required opinions, which were received in March 2022. The version of the DSMF that incorporates additional aspects highlighted by the opinions received is currently being prepared. Once approved, the document will also be updated every three years or, in any case, in the event of changes in scenarios of an exceptional nature.

The document prepared by the MIMS is structured as follows:

- **the strategic objectives in terms of infrastructure and mobility policy based on the mobility needs of people and goods:**
  - policy lines for the development of infrastructure and mobility systems;
  - strategic rail axes within the European TEN-T network and the National Integrated Transport System (SNIT);
  - demand for rail transport: current trends and prospects;
- **the 2022-2026 Programme contracts: available resources and strategic directions:**
  - the Programme contracts: general framework;
  - the available resources;
  - the strategic rail mobility Programmes;
- **the ex-ante, in-progress and ex-post assessment methodologies:**
  - the ex-ante selection criteria;
  - the ex-post analyses of the effects of Programmes and interventions;
  - the criteria for evaluating the manager's performance and the related bonuses and sanctions;
  - the in in-progress evaluation through updates of the strategy document.

II.4 ROAD SAFETY PLANS AND INVESTMENTS

THE 2030 NATIONAL ROAD SAFETY PLAN

The National Road Safety Plan, according to Italian Law No. 144 of 17 May 1999, 'consists of an articulated system of guidelines and measures for the promotion and incentivisation of plans and tools to improve safety levels by owner and managing bodies, of infrastructural interventions, of prevention and control measures, of regulatory and organisational devices, aimed at improving safety in accordance with Community objectives'. Moreover, the Plan will be strongly integrated with the international context and fully consistent with the strategic Programming of the UN (Resolution by the General Assembly. 74/299 Improving global road safety - 2/9/2020) and of the European Commission in the sector (EU Road Safety Policy Framework 2021-2030 - Next steps towards 'Vision Zero').

In order to prepare the National Plan, the 'General Guidelines and the Implementation Guidelines' of the Plan were first drafted and sent to the competent Commissions of the Chamber of Deputies and the Senate to obtain the required opinions. After the favourable opinions were obtained, the Interministerial Decree No. 29 of 7 February 2022 approving the Guidelines was issued. On this basis, the **2030 National Road Safety Plan** was drafted by the MIMS, pending the opinion of the Unified Conference and subsequent approval by the Interministerial Committee for Economic Planning and Sustainable Development (CIPESS).

The general objective of reducing fatalities and serious injuries by 50% by 2030 was set out in the Guidelines, and the vulnerable categories like cyclists, pedestrians, people using motorised two-wheel vehicles, people over 65 and children have already been identified through a preliminary analysis. The Plan has defined specific targets for each category in order to maximise the efficiency and effectiveness of the resources spent on improving road safety.

Action strategies are organised on two levels:

- specific strategic lines aimed at the most vulnerable categories;
- general strategic lines addressing the whole system.

The measures into which the strategies are to be articulated were then proposed and some trends that are currently underway and will develop over the decade were examined in detail, according to which specific actions will have to be taken:

- population (ageing and increase in resident foreigners);
- automation, shared mobility and MaaS (autonomous vehicles, mobility using both shared vehicles and public transport, mobility understood as a service that combines the various means and modes of public and private transport through a single ticket);
- freight traffic and e-commerce (increased volumes of goods and vehicles for distribution in urban areas);
- micro-mobility (dissemination of electric individual mobility devices such as electric scooters, segways, monowheels);

- redevelopment of urban spaces for mobility (redesigning and regulating urban spaces for mobility, especially non-motorised mobility).

The monitoring system, necessary to recommend possible corrections to the measures proposed in the Plan in order to implement the strategic lines, is based on the definition and collection of four types of indicators:

- risk exposure indicators (urban, suburban, motorway vehicle-km);
- process indicators (progress of interventions);
- Safety Performance Indicators describing the safety level of the different parts of the road traffic system;
- impact indicators (accidents, injuries and fatalities).

INVESTMENTS FOR SECURING SECONDARY ROADS

The MIMS is working on the implementation of a Programme for securing and increasing the resilience of the secondary road network (regional, provincial and metropolitan city roads), **for which more than EUR 12 billion have been allocated to date.** Of this amount, more than EUR 9.284 billion have been allocated, of which EUR 2.685 billion have been specifically devoted to securing bridges and viaducts on the road network under the management of provinces and metropolitan cities, and EUR 300 million for the road network serving inland areas of the National Strategy for Inner Areas (SNAI). In particular, in the current year EUR 4.625 billion have been allocated, of which EUR 1.400 billion for bridges and viaducts and EUR 1.850 billion for extraordinary maintenance Programmes, functional adaptation and resilience to climate change of the road network managed by Regions, Provinces and metropolitan cities, also with reference to route alternatives. The allocation criteria are shared with the beneficiaries and consist, in addition to the size and use of the network under management of each implementing body, in the presence of risks, both anthropogenic (accident level) and natural (earthquake or hydrogeological instability).

With a view to guaranteeing a managerial organisation of the road network, the resources allocated from the current year onwards also allow to intervene on road sections managed by the municipalities, according to a principle of subsidiarity, when:

- the sections in question insist on a line of territorial or functional route continuity;
- an agreement is formalised between the entities concerned;
- the role of the implementing body (region, province or metropolitan city) remains unchanged.

This allows to significantly increase the degree of resilience and, in general, the safety of an entire part of the road network, thus transcending the logic of administrative attribution in favour of a more modern strategic vision.

Lastly, it should be stressed that the measures to make bridges and viaducts safe may include, as ancillary works, the repair of any secondary roads accessible to light mobility, such as cycle paths or pedestrian zones, as they are part of the works to protect vulnerable users and facilitate the transition to soft mobility.

TABLE II.4.1: SUMMARY OF PLANNED INVESTMENTS BY TYPE AND ALLOCATION STATUS

LINE OF INTERVENTION	RESOURCES (EUR million)		
	ALLOCATED	TO BE ALLOCATED	TOTAL
Extraordinary maintenance of the road network managed by provinces and metropolitan cities	4,749	1,425	6,174
Securing bridges and viaducts of the road network under the management of provinces and metropolitan cities	2,685	-	2,685
Increasing the resilience of the road network under the management of regions, provinces and metropolitan cities	1,850	1,500	3,350

II.5 THE IMPLEMENTATION OF THE NATIONAL STRATEGIC PLAN FOR PORTS AND LOGISTICS

In the wake of the forecasts contained in the National Strategic Plan for Ports and Logistics (*Piano Strategico Nazionale della Portualità e della Logistica*, PSNPL), approved by the Italian Council of Ministers on 3 July 2015 and adopted on 6 August 2015 by Italian Prime Ministerial Decree, the MIMS continued to pursue the objectives, strategies and specific actions aimed at reinforcing the competitiveness of the entire national port system in line with the strategic lines outlined in the aforementioned document during the two-year period from 2021 to 2022. Excluding the reforms and measures already launched with Italian Legislative Decrees 169/2016 and 232/2017 on governance, national coordination and administrative and procedural simplifications, as well as the numerous economic support measures aimed at absorbing the financial strains faced by public bodies and market operators in the sector resulting from the pandemic crisis, the action of the MIMS focused on the following points:

- **improvement of port governance**: as better detailed below, the action of updating and structuring the territorial articulation of the AdSPs continued with the provisions of paragraph 2, **Art.** 4 of Italian Decree-Law No. 121 of 2021 converted with amendments by Italian Law No. 156 of 9 November 2021, which provided for the inclusion of the Port of Arbatax, the Porto Rifugio and Porto Isola of Gela, the Port of Licata and the Port of Saline Joniche within the perimeter of the respective AdSPs. Also worthy of note is the important revision process of the European TEN-T networks, formalised with COM/2021/812 final on 14 December 2021 of the European Commission, which saw, among other things, the recognition of the port of Civitavecchia as the core node of the network;
- **simplification and streamlining:** also in the light of the reforms included in the PNRR concerning the port sector, two important regulatory changes were introduced during 2021: the first was introduced with Italian Presidential Decree No. 235 of 29 December 2021 and concerned the Regulations governing the Single Customs and Control Counter (SUDoCo), which came into force on 15 January 2022 and the second concerned the simplification of the strategic Programming by the AdSPs by streamlining the administrative procedures for

the approval of the system's strategic Programming document referred to in Article 4, paragraph 1-septies of Italian Decree-Law No. 121/2021, converted by Italian Law No. 156/2021;

- **infrastructural strengthening of national ports:** the port interventions provided for in the PNRR, the PNC, the last Budget Law and the allocation of the Planning Feasibility Fund, included the allocation of substantial resources for national ports in the 10 intervention Programmes provided for in the Infrastructure Annexes of previous years, aimed at increasing maritime and land accessibility, selective increases in capacity, digitalisation, infrastructure resilience to climate change, environmental sustainability and the strengthening of passenger terminals at national ports. In particular, with respect to the forecasts of the PSNPL, with regard to measures for accessibility and measures for the infrastructural enhancement of ports and their land connections, there is an increase in resources amounting to EUR 471 million to cover the 'Ports and Interports Programme - Last/Penultimate railroad mile and network connections' as part of the 2020-2021 update of the Infrastructure CdP with RFI. The Programme, with a total cost of more than EUR 1,680 million, has residual needs of EUR 341 million for the five-year period from 2022 to 2026 and EUR 248 million for the period after 2026;
- **improvement of environmental sustainability:** in Programming the resources for port investments, special attention was paid to the implementation of activities aimed toward the environmental sustainability of Italian ports as provided for in the PSNPL, Action 7.1 'Measures to improve energy efficiency and environmental sustainability in ports', including EUR 700 million for the electrification of port docks in the PNC and the funding line managed by the MITE for the improvement of energy efficiency and waste management in ports (green ports) using PNRR resources. Significant resources were also allocated for the renewal of the naval fleet (EUR 800 million) so as to support and speed up the transition towards the use of alternative marine fuels. Also on the basis of the PNRR forecasts, the reform to simplify authorisation procedures for cold ironing plants in ports is almost ready.;
- **strengthening of competitiveness and competition:** the regulation governing the length of new port concessions, the supervisory and control powers of the concession-issuing authorities, the renewal modalities, the transfer of the plants to the new concession-holder at the end of the concession, and the regulation of the limits for the minimum fees to be paid by the licensees is currently being finalised. At the same time, with regard to competitiveness, new impulse was given to the implementation phase of the Special Economic Zones (SEZs) and Simplified Logistic Zones (SLZs) with Italian Decree-Law No. 77 of 2021 (so-called simplification decree - Article 57), intervening on their operation and governance, as well as with Ministerial Decree No. 492 of 03/12/2021, which distributed the EUR 630 million among the SEZs to be used for the interventions within their jurisdiction pursuant to the PNRR.
- **freight modal shift:** in order to pursue this strategic objective, the allocation of resources for the extension until 2026 of the incentive measures Marebonus and Ferrobonus is particularly important. These measures, being part of the ecological transition process applied to transport, support the objective of

promoting alternatives to road transport (maritime, rail and river transport), with a view to reducing CO2 emissions and decongesting roads, in line with both a much-desired, improved transport integration and the EU policies of the TEN-T corridors.

II.6 THE NATIONAL COLD IRONING PLAN

Maritime transport causes critical environmental issues due to the use of low-quality fuels, which result in negative externalities both at sea and, more importantly, when moored in port. While the issue of switching to less polluting propulsion systems is discussed in Section II.12, the only solution for eliminating atmospheric emissions and noise in port is to electrify the docks through cold ironing, which requires an upgrade of the National Electricity Grid.

Cold ironing is one of the measures outlined in Directive 2014/94/EU (known as the DAFI Directive), which establishes a common framework of rules for the implementation of an infrastructure for alternative fuels in the European Union in order to minimise dependence on oil and mitigate the environmental impact of the transport sector. The directive provides for the implementation of a coastal electricity supply network to be completed by 31 December 2025: this project is one of the priorities for ports in the European TEN-T network and is listed as relevant for other ports, unless there is no demand and the costs are disproportionate to the benefits, including environmental benefits.

The environmental relevance, the European regulatory context with the related deadlines to be met, and the high innovative content of the cold ironing infrastructure have made it necessary to start a strategic planning and Programming intervention by means of the **National Cold Ironing Plan.** This Plan, which is being prepared in line with the national decarbonisation targets set in the PNIEC in terms of energy efficiency in transport, involves all Port System Authorities and three regions that have jurisdiction over a number of ports (Sicily, Sardinia and Veneto). The total number of ports to be electrified is 34, of which 32 are part of the TEN-T network and two others are relevant in terms of traffic and environmental impact. Of the 34 ports, 12 are considered a priority for the purposes of implementing the Plan, as they are most relevant for cruise traffic: Genoa, Savona, La Spezia, Livorno, Civitavecchia, Naples, Palermo, Bari, Ravenna, Venice-Marghera, Trieste and Cagliari.

The Complementary National Plan, which is complementary to and in synergy with the National Recovery and Resilience Plan (PNRR), puts cold ironing under Mission 3 - Infrastructure for Sustainable Mobility, Component 2 - Integrated Intermodality and Logistics. The MEF Ministerial Decree of 15 July 2021 identified the initial, intermediate and final objectives for each Programme, intervention and project of the National Complementary Plan, including cold ironing, as well as the related monitoring methods. According to the schedule, by the second quarter of 2024, 100% of the work will have started and by the second quarter of 2026, the total electrical power of 682 MW is scheduled for installation. As already mentioned, priority has been given to ports catering to the market of cruise ships, given their greater environmental impact and the fact that many of them are already designed

for connecting to the land-based electricity grid, thus enabling the initiative to be implemented quickly.

The MIMS Decree No. 330 of 13 August 2021 allocated 48.3% of the resources for the implementation of cold ironing operations to the regions of the South and 51.7% of the resources to the regions of the Centre-North, for a total value of EUR 700 million. The same decree identified the Port System Authorities and the Regions as beneficiaries and implementing bodies.

The Plan, which is currently being finalised, analyses the regulatory context, the technological and economic scenario, as well as European best practices, and outlines the investments and reforms to be implemented to ensure the success of the investments. In addition, authorisation processes for the construction of infrastructures aimed at supplying shore-to-ship electricity during the mooring phase (M3C2-4) are to be simplified by the end of 2022. In this regard, the Italian Decree-Law No. 36 of 30 April 2022, containing 'Further Urgent Measures for the Implementation of the National Recovery and Resilience Plan (PNRR)', provides, in Art. 33, that the projects for the construction of works and facilities for the electrification of ports, as well as the related works and infrastructures necessary or in any case indispensable for the construction, electrification and operation of the facilities themselves are to be considered of public utility and of a non-deferrable and urgent nature. It also states that, without prejudice to the measures falling within the competence of the Ministry of the Interior in matters of fire prevention, the interventions require a single authorisation, issued by the competent region, following the outcome of a services conference, promoted by the Port System Authority or by the region, in compliance with the regulations in force concerning environmental protection, landscape protection and the protection of the historical-artistic heritage.

The objectives and goals of the National Cold Ironing Plan do not only concern the actual physical creation of electrified quays: the Plan is also intended to be a tool to directly and indirectly promote an improvement in the technological equipment of ports in order to increase their competitiveness in an increasingly challenging market, their resilience and their alignment with international standards.

II.7 THE PLAN FOR THE MODERNISATION OF THE INSTRUMENTAL MEANS OF THE CORPS OF THE PORT CAPTAINCIES - COAST GUARD

The MIMS, in line with its competences and functions on the subject of 'Public Order and Safety - Safety and control at sea, in ports and on the coastline', is committed to exercising, through the Corps of the Port Captaincies - Coast Guard, the role of strategic coordination in the planning of infrastructural interventions directly connected to the efficiency of the SAR (search and rescue) organisation, through the modernisation of the air-naval and infrastructural components, of the monitoring, information and management systems of maritime traffic through the VTMIS (Vessel Traffic Monitoring Information System) platform, and the implementation of the European single maritime interface (EMSWe) referred to in Regulation (EU) 2019/1239.

The modernisation Programmes of the aeronaval, ICT and infrastructure components are implemented in line with the political priorities of the European Union, which consider the fight against climate change as one of the main challenges of the near future, also in order to contribute to the achievement of the sustainable development goals of the UN 2030 Agenda, the European Green Deal and the recent 'Fit for 55' reform package proposed by the European Commission, in compliance with the principle of 'do no significant harm' to the environment.

In this perspective, during the past financial years, the Port Captaincies were allocated resources aimed at enabling the launch of a ten-year Programme for the modernisation of the coastal naval component (Italian Law No. 234 of 30 December 2021), for the implementation of the EMSWe, as well as to implement the process of digital transition of the services offered to users (Italian Law No. 156 of 9 November 2021) and to launch a Programme for the modernisation/renewal of infrastructures (2018, 2019 and 2020 Budget Law) functional to the performance of the services provided to users.

TABLE II.7.2.: PLAN FOR THE MODERNISATION AND RENEWAL OF THE INSTRUMENTAL MEANS OF THE PORT CAPTAINCIES - COAST GUARD

Year	2017 Investment Fund (1) (EUR million)	2018 Investment Fund (2) (EUR million)	2019 Investment Fund (3) (EUR million)	2020 Investment Fund (4) (EUR million)	Budget Law 21-23 (5) (EUR million)	Budget Law 21-23 (6) (EUR million)	Law 156/2021 (EUR million)	Total (EUR million)
Area of Intervention	INFR	INFR- AERNAV	INFR AERNAV ICT	INFR AERNAV	AER	NAV	EMSWe ICT	
2018	1.0	0.5	-	-	-	-	-	**1.5**
2019	3.5	2.7	-	-	-	-	-	**6.2**
2020	15.5	7.8	0.5	-	-	-	-	**23.8**
2021	10.5	11.8	2.8	-	-	-	-	**25.1**
2022	10.5	12.3	9.9	16.0	13.0	18.0	8.0	**69.6**
2023	10.5	21.3	9.9	17.0	13.0	21.0	8.0	**79.6**
2024	9.5	24.3	17.0	12.0	14.0	30.0	8.0	**84.7**
2025	-	22.5	10.1	4.5	15.0	33.0	12.0	**64.1**
2026	-	25.5	9.7	4.5	-	33.0	12.0	**51.7**
2027	-	13.0	10.6	3.5	-	33.0	12.0	**39.1**
2028	-	3.0	10.9	2.5	-	33.0	12.0	**28.4**
2029	-	4.0	11.9	-	-	33.0	12.0	**27.9**
2030	-	4.0	12.3	-	-	33.0	12.0	**28.3**
2031	-	4.0	12.3	-	-	33.0	12.0	**28.3**
2032	-	4.0	12.3	-	-		12.0	**28.3**
2033	-	-	11.5	-	-		12.0	**23.5**
2034	-	-	-	-	-		12.0	**12.0**
2035	-	-	-	-	-		12.0	**12.0**
2026	-	-	-	-	-		12.0	**12.0**
TOTAL	**61.0**	**160.5**	**141.6**	**60.0**	**55.0**	**300.0**	**168.0**	946.1

Legend: INFR (infrastructure); AER (air); NAV (naval); ICT (information and communications technology); EMSWe (European Maritime Single Window environment)

The spending authorisations provided for in the latest budget laws necessary to launch a Programme for the modernisation and renovation in a green key of the

coastal naval component (2022 Budget Law) and of the infrastructures of the Port Captaincies - Coast Guard (2018, 2019 and 2020 Budget Law), in addition to a recent allocation provided for by Italian Law No. 156 of 9 November 2021, aimed at implementing the EMSWe, as well as to develop the digital transition process of the services offered to users, attest to the importance of sustainable management of the Maritime Authority and the correct development of the related instrumental and infrastructural resources in order to ensure the safety of navigation and the safeguard of human life at sea in a constantly evolving scenario conditioned by the effects of climate change.

The spending authorisations granted to date have enabled the following priority Programmes to be launched

TABLE II.7.3.: PRIORITY INTERVENTIONS LAUNCHED		
Infrastructural interventions	**Starting date**	**Intervention status**
Construction of the Bari Naval Base	06 February 2018	Localised PRP variant approved. Final design in progress
Construction of the new port captain's office in Taranto	30 April 2021	Final design in progress
Upgrading of the Messina naval base infrastructure	30 June 2021	Design in progress
Modernisation of Sarzana Air Base.	28 January 2022	Under contractual execution
Modernisation of Catania Air Base	08 August 2019	Tender specifications under approval
Aeronaval Interventions	**Starting date**	**Intervention status**
Modernisation of three FIXED-wing aircraft (ATR 42)	18 December 2018	Completed
Expansion of the flight line for rotorcraft (AW 139	24 June 2021	Under contractual execution
Acquisition of a multi-role offshore unit with a 2-unit option	15 November 2021	Under contractual execution
Purchase of coastal boats for surveillance/rescue	14 May 2020	Completed
ICT Intervention	**Starting date**	**Intervention status**
Realisation of the European Maritime Single Window environment	January 2022	In-house outsourcing to SOGEI under preparation
Modernisation of the IT component and digitisation of administrative procedures related to port activities, to be carried out by the maritime administration	January 2022	

FUTURE GOALS

To continue the work for the modernisation and renewal, in a ‘green’ key, of the aeronautical and infrastructural component of the Port Captaincies - Coast Guard, which is subject to premature wear and tear, especially due to the exceptional use of vessels in recent years due to the migration emergency, primarily to improve the efficiency of the measures to prevent accidents at sea and to encourage investment in the shipbuilding industry in its broadest sense and socio-economic importance.

The renewal and modernisation Programme has the following objectives:

- to accelerate the production and use of modern, environmentally sustainable naval vessels with a certified lower carbon footprint, with significant effects on employment and mobility;
- to close the investment gap needed to accelerate the green transition of European ships towards the challenging eco-friendly targets that Europe intends to achieve by 2030, giving priority to the reduction of CO2 and sulphur emissions and the release of pollutants into the sea;
- to modernise existing infrastructures and/or build new facilities with a view to energy containment, emission reduction and boosting of the circular economy, favouring BIM design methodologies;
- to continue the process of workforce expansion and generational turnover of staff with the acquisition of the professional skills outlined in Article 3 paragraph 2) of Italian Law 56/2019 in order to address the new functions and challenges faced.

II.8 THE NATIONAL MARITIME SAFETY PROGRAMME

On 16 March 2022, the MIMS approved the new **National Maritime Safety Programme against intentional unlawful acts**. The measure replaces the previous 2007 edition in the light of EU and international regulatory developments in the field of Maritime Security, completing a process of revision and updating aimed at improving the security of the entire cycle of business operations both with regard to the ship and the ship/port interface.

In recent years, the introduction of compulsory inspections on the ships and in the ports of the EU Member States, the implementation of Cyber Security systems, the growing phenomenon of maritime piracy, the need to streamline and digitalise administrative activities related to maritime traffic and, last but not least, the additional experience gained by the personnel of the Corps of Port Captaincies during inspections on the national fleet and in state port facilities, have made it necessary to adjust the 'Programme', simplifying its application.

The Programme, required by EU Regulation 725/2004 and organised in five parts, was also developed in light of Directive 2005/65/EC, on 'Improving Port Security' and implemented in Italy by Italian Legislative Decree No. 203 of 6 November 2003. This directive completes, in a broader sense, the security of the maritime and ship/port interface, establishing a homogeneous security system throughout the port area and ensuring a high and equal level of security in all European ports that covers the entire logistics chain of maritime transport.

II.9 MARITIME SPATIAL MANAGEMENT PLANS

The high increase in demand for the use of maritime space for different civilian and industrial purposes calls for an integrated planning and management strategy that succeeds in combining the development of maritime economies with a sustainable use of related resources. The process for the planning of maritime space began in Italy with Italian Legislative Decree No. 201 of 17 October 2016, which

transposed Directive 2014/89/EU establishing a framework for the planning of maritime space with the intention of promoting the sustainable growth of maritime economies (so-called blue economy), the sustainable development of marine areas and the sustainable use of marine resources.

Italian Legislative Decree 201/2016 introduced a 'multilevel governance' and established the modalities for the involvement of the different actors: in particular, it provided for the establishment of the Inter-Ministerial Coordination Table, set up at the Department for European Policies of the Presidency of the Council of Ministers, and the Technical Committee (*Comitato tecnico*, CT) - which has the task of drafting the Maritime Spatial Management Plan - established at the Ministry of Sustainable Infrastructures and Mobility. The aforementioned Legislative Decree stipulates that the CT is to be attended by representatives of the fifteen coastal regions, representatives of the five ministries (MIMS, MISE, MITE, MIC and MIPAAF, to which the Ministry of Tourism must be added after the recent reorganisation), as well as the representative of the Ministry of Defence (SMM/Hydrographic Institute of the Italian Navy), acting as an observer.

The MIMS has been identified as the Competent Authority and as the seat of the CT, which is supported in its activities by a Scientific Pole composed of members from the National Research Council, the IUAV University of Venice, and CORILA (Coordination of research activities concerning the Venice lagoon system). During the meetings of the Technical Committee (fifteen in total, the most recent being held on 6 December 2021), three Regional Subcommittees corresponding to the three maritime reference areas were established, with the task of drafting the three Maritime Spatial Management Plans (one for each area).

The EU directive (transposed by Italian Legislative Decree 201/2016) stipulates, among other things, that when preparing and implementing maritime spatial planning, Member States shall **take into account economic, social and environmental aspects in order to support sustainable development and growth in the maritime sector, applying an ecosystem approach**, and to promote the coexistence of relevant activities and uses. Through their respective **Maritime Spatial Management Plans (*Piani di Gestione dello Spazio Marittimo*, PGSM),** Member States aim to **contribute to the sustainable development of the maritime energy, maritime transport, and fisheries and aquaculture sectors** for the conservation, protection, and enhancement of the environment, including resilience to the impact of climate change. Member states may also pursue other objectives, such as the promotion of sustainable tourism and the sustainable extraction of raw materials.

When developing and implementing maritime spatial planning, Member States shall prepare **PGSMs in order to identify the spatial and temporal distribution of relevant current and future activities and uses of their marine waters** in order to contribute to the achievement of the described sustainable development goals. It is further stipulated that each country, when preparing such Plans, shall provide for the **participation of the public by informing all stakeholders and consulting with interested parties and competent authorities, as well as the affected population, as early as the initial stages of the preparation of the Maritime Spatial Management Plans**.

With this in mind, the relevant interactions between activities and uses should be taken into account when preparing the PGSMs. Without prejudice to the

competencies of member states, possible activities, uses and interests may include, among others:

- aquaculture areas;
- fishing areas;
- facilities and infrastructure for the prospecting, exploitation and extraction of oil, gas and other energy resources, as well as minerals and aggregates, and the production of energy from renewable sources;
- maritime transport routes and traffic flows;
- military training areas;
- nature and species conservation sites and protected areas;
- raw material extraction areas;
- scientific research;
- submarine cable and pipeline routes;
- tourism;
- underwater cultural heritage;
- coastal landscapes.

With the Italian Prime Ministerial Decree of 1 December 2017, **the Guidelines containing the indications and criteria for the preparation of maritime spatial management plans were approved**. The Guidelines start from a reasoned and integrated overview of existing evidence to provide guidance with respect to the strategic outcome to which maritime spatial planning should strive, identifying and proposing integrated strategic objectives consistent with what is defined in Directive No. 2014/89/EU. They identify the methodological course to be followed when developing the PGSMs with a view to transparency and simplification, through the involvement in the decision-making process of all economic and social stakeholders, emphasising the need to take into account the planning/Programming tools already in place in the specific areas that will be affected by these activities, as well as the control and monitoring of the processes and then the results to be achieved. The Guidelines also outline the principles with which to identify strategic and operational objectives and their subsequent implementation into concrete and measurable actions. Planning should, moreover, be set up using an ecosystem approach, taking into account land-sea interactions and the strengthening of cross-border cooperation.

In short, the drafting process includes the following steps:

- production of the contributions of each coastal region for matters under their jurisdiction;
- inclusion of data taken from national sectoral Plans, relevant to each Department (e.g., for the MIMS, the National Ports and Logistics Plan, strategic plans of the Port System Authorities);
- launch of the SEA (Strategic Environmental Assessment) procedure for each of the three Management Plans;
- start of a phase of consultation with stakeholders and neighbouring countries;
- preparation of the drafts of the Management Plans by each subcommittee;

- approval of these drafts by the full CT.

At present, the PGSMs are being drafted by the CT, then the Plans will be formally transmitted to the Presidency of the Council of Ministers - EU Policy Department and the Interministerial Coordination Table will be convened, as provided for in Article 6 of the aforementioned Legislative Decree, which will have to certify that they correspond to the Guidelines approved with Prime Ministerial Decree of 1 December 2017 ("Approval of the Guidelines containing the indications and criteria for the preparation of maritime spatial management plans"), prior to the final approval that will be made by Ministerial Decree.

II.10 THE NATIONAL PLAN FOR AIRPORTS

The National Plan for Airports is the Programmatic action of reference for the Country's airport network by 2030, and it is based on the relevant forecasts regarding air traffic at national level. The new Plan will replace the current one, which was officialised in 2014 by the MIMS and introduced as the action plan at the core of the Presidential Decree No. 201 of 17 September 2015, which identified the airports of national interest pursuant to Art. 698 of the Italian Navigation Rules.

The Plan currently in force is based on strategies such as the classification of airports integrated with the Trans-European Transport Network (TEN-T), the optimisation of airports' capacity in existing layovers, the safeguard of areas surrounding airports in order to make their widening possible, a planning integrated with the territory, also in an attempt to foster the development of synergies with private and public players operating next to airports, as well as long-term environmental sustainability of airports as a contribution to both national and European policies. Moreover, the Plan aims at providing a system analysis of mobility which takes into account the synergic relationship between airports and the railway system so as to give value to the intermodality of transport and promote the integration of transport systems.

The air traffic crisis recorded in the last years, together with the need to plan the recovery of the whole industry in a sustainable way, has led the MIMS to entrust the Italian Civil Aviation Authority (*Ente Nazionale per l'Aviazione Civile*, ENAC) with the update and critical review of the 2014 Plan according to the Programmatic guidelines defined by the MIMS and the coordination of the General Management of Airports, Air Transport and Satellite Services, by taking care – at the same time – of the strategic environmental assessment procedure of the new network carried out by the Italian Ministry for Ecological Transition (*Ministero della Transizione Ecologica*, MiTE).

The new National Plan for Airports, the development of which is at an advanced stage, aims at defining the strategic choices that can guide investments in the airport industry, by following the the PNRR pillars. Specifically, the Plan aims at highlighting the synergic opportunities which will make it possible to overcome existing problems as well as meet arising needs, through the development of solutions, which foster the use of the state-of-the-art technologies and promote digitalisation. The MIMS intends to develop an optimised and sustainable airport

network, where new infrastructures will only be created on the condition that an assessment of any potential implementation on existing facilities, that may be enhanced with the best available technologies and have clear environmental benefits, is carried out first.

The Plan review procedure will focus on sustainability and, apart from that, particular attention will be given to the definition of the roles of single layovers, the identification of the right conditions for a higher intermodality of transport, the implementation of advanced technologies applied to air transport, with particular reference to aerospace and urban air mobility (UAM), the strategic planning for the minor air transport network and general aviation, and the definition of a national network for air cargo.

The first stages of the process leading to the new Plan, which shall be a small part of the even more ambitious General Plan for Transport and Logistics, started with data collection and analysis. For this reason, Bodies and institutions interested in the transport industry will be involved in the development of the Plan in order to show that intermodal integration needs to be at the core of the strategic planning of national mobility together with environmental sustainability.

II.11 URBAN PLANS FOR SUSTAINABLE MOBILITY

The strategies planned in the context of metropolitan areas are in line with the EU's and Italy's main objectives in terms of 'energy and climate' by 2030 and 2050, as specified in the PNRR and in the PNIEC. Specifically, the macro-objectives of 'decarbonisation' and 'ecological transition' are pursued in line with the strategies of the PNRR's M2 mission and the Complementary National Plan (*Piano Nazionale Complementare*, PNC), as well as the PNIEC's explanatory table *'Main measures envisaged to achieve the objectives', under 'transport efficiency'*.

The planning tool to be used for new mobility interventions in urban areas, which shall be transport-related and strategically consistent, is the **Urban Plan for Sustainable Mobility** (*Piano Urbano della Mobilità Sostenibile*, PUMS) drawn up by each Municipality. In the medium/long-term (i.e., 10 years), the PUMS shall develop an overall vision of urban mobility and pursue environmental, social and economic sustainability objectives, through a set of actions aimed at improving the effectiveness and efficiency of mobility as a whole and its integration with urban and spatial planning and development.

The approach to strategic planning for urban mobility refers to the ELTIS '*Guidelines. Developing and Implementing a Sustainable Urban Mobility Plan*' approved in 2014 by the European Commission's Directorate-General for Mobility and Transport, and updated in 2019. In line with the Guidelines, the PUMS, which deals with the urban planning of large areas, shall focus on the integration and organisation of spatial and transport planning tools existing at local level – if any -, by taking precedence over sectoral Plans.

Specifically, the Italian Decree-Law 194/16 provided for the adoption of uniform criteria at national level for the drawing up and application of the PUMS, and the MIT (now MIMS) Decree No. 397 of 2017 outlined the Guidelines for their drawing up and implementation in compliance with the Directive 2014/94/EU. In addition, by means of the Ministerial Decree No. 171/19 and the Ministerial Decree No. 594/19, state

resources were made available for the preparation of PUMS by those still in default. The Ministerial Decree 397/2017 also provided for the creation, within the MIMS, of a Technical Table for the monitoring of PUMS to be carried out both in a general way and by using the indicators illustrated in specific tables. This is done in order to improve the whole process, also envisaging the possibility of integrating some aspects of the Guidelines - while being consistent with the European Law - and of the indicators themselves, in order to make it easier to fully implement and disseminate the system. As a first step, the Technical Table created a database to verify how many municipalities and metropolitan cities had complied with the obligation to adopt PUMS. After that, the PUMS were sent by the territorial authorities to the MIMS so that their compliance with the Guidelines could be assessed - this being an essential condition to obtain the state funding needed to carry out the interventions aimed at developing urban mobility infrastructures and renewing vehicle fleets.

In the cities, sustainable mobility is based, first of all, on public transport pillars. In large urban areas, such pillars are created through **fast mass transport systems** (i.e., underground, tramways, urban railways), which are integrated with each other and with other collective or individual mobility systems (i.e., buses – mostly electric and hydrogen-powered ones or, in any case, with low CO_2 emissions -, taxis, shared mobility, urban cycle route or micromobility systems, above all for the last mile or short distances), with the objective to reduce the share of modal split allocated to private transport.

Even for the Country's urban areas with less than 100,000 inhabitants, where the preparation of PUMS is not mandatory but strongly recommended, public transport users shall be offered everyday more low-environmental impact transport systems, i.e., electric/hydrogen-powered buses and/or infrastructures for local public transport fast tracks such as the Bus Rapid Transit (BRT). Such solutions shall be implemented in any case, and not only for the transport of passengers but also for goods, by always being in line with urban policies through an increasingly stringent use of integrated planning tools (e.g., biciplan, Plan for logistic, Plan for the local public transport).

Full integration of transport modes can be achieved through mobility services that, with a vision to MaaS (Mobility as a Service), may contribute to easily and conveniently use different transport modes. In this perspective, the MIMS has started to think of how to **change LPT** in a way as to give as much value as possible to intermodal transport, through interconnected and optimised routes, which can be – first of all – environmentally sustainable.

ROLLING STOCK RENEWAL

The improvement of sustainability for the mobility in urban areas calls for a significant renewal of LPT vehicles, which is one of the key measures provided for by the PNIEC. In this respect, starting from the last five years, an extraordinary plan of renewal of the road vehicle fleet has been initiated in Italy, thanks also to regulatory interventions such as Art. 1, par. 631 of the Italian Law 232/16, which has led to the approval of the **National Strategic Plan for Sustainable Mobility** (*Piano Strategico Nazionale della Mobilità Sostenibile*, PSN-MS), whose main objective is to provide Regions and Local Authorities as well as LPT companies and the supply service industry with medium-term strategic guidelines in relation to

different technological options, towards the progressive development of alternative fuel vehicle fleets.

During 2020 and 2021, implementing decrees have been issued for the allocation of PSN-MS resources, for a total of EUR 3.88 billion. In particular, resources were allocated as follows:

- to Regions, for a total amount of EUR 2.2 billion (Ministerial Decree No. 81 of 14 February 2020);
- to Metropolitan Municipalities and Provincial Capitals with high PM10 and nitrogen dioxide pollution, limited to the first five-year period of application for a total amount of EUR 398 million (Ministerial Decree No. 234 of 6 June 2020);
- Municipalities and Metropolitan Cities with over 100,000 inhabitants, for a total amount of EUR 1.1 billion plus EUR 185 million coming from 2019 investment fund (Ministerial Decree No. 71 of 9 February 2021).

In addition to what is provided for by the PSN-MS, and once again with regards to the renewal of buses using state sources, additional resources for a total of EUR 460 million was allocated between the end of 2016 and the beginning of 2021 using national sources (Investment Fund and FSC).

Under the PNRR, Mission 2, Component M2C2, Ministerial Decree No. 530 of 23 December 2021, EUR 1.915 billion was allocated for the purchase of zero-emission buses powered by electricity or hydrogen and the building of related infrastructures to support power supply, in order to renew the vehicle fleet of local public transport services in metropolitan city municipalities, regional or autonomous province capitals, and municipalities with high rates of PM10 and nitrogen dioxide pollution.

Under the Complementary National Plan, Ministerial Decree No. 315 of 2 August 2021 further EUR 600 million was allocated for the purchase of methane-, electric- or hydrogen-powered buses and related infrastructures for power supply, used for intercity and suburban public transport, in compliance with the provisions of the National Strategic Plan for Sustainable Mobility, with the possibility to allocate up to 15% of the resources referred to in paragraph 1 to the conversion of Euro 4 and Euro 5 diesel-powered vehicles to natural gas.

In addition to such considerable resources allocated for the renewal of the vehicle fleet, specific measures were also provided for the scrappage of the oldest and most polluting vehicles, in line with the measures provided for by the PNIEC. Starting from January 2019, the almost 6,000 Euro 0 vehicles are no longer allowed to circulate throughout Italy. Furthermore, according to paragraph 11-bis of Art. 27 of the Italian Decree-Law No. 50 of 24 April 2017, service contracts on the operation of public transport services drawn up after 31 December 2017 may no longer provide for the circulation of Euro 0 or Euro 1 vehicles.

Finally, Italian Law No. 156 of 9 November 2021, which converted, with amendments, the Italian Decree-Law No. 121 of 10 September 2021, provided for a ban on the circulation of petrol- or diesel-oil-powered motor vehicles of categories M2 and M3, used for local public transport services, with Euro 1 features as of 30 June 2022, with Euro 2 features as of 1 January 2023, with Euro 3 features as of 1 January 2024. The same Italian Decree-Law No. 121 of 11 September 2021, converted with amendments by Italian Law No. 156 of 9 November 2021, for the purchase of alternative fuel road vehicles to be used for local public transport

services, provided for the authorisation to spend EUR 5 million for the year 2022 and EUR 7 million for every year from 2023 to 2035 (for a total of EUR 96 million).

In the same period, EUR 1,420 million was funded by National Funds and the FSC for the renewal of railway rolling stock used in urban and regional public transport. Under the PNRR, Mission 2, Component M2C2, further EUR 500 million was allocated by the Ministerial Decree No. 319 of 9 August 2021 for the purchase of electric or hydrogen-powered trains to renew the railway rolling stock of fleets used for regional transport services of interest for Regions and Autonomous Provinces.

For the renewal of the shipping fleet used for LPT, the Italian Decree No. 52 of 22 February 2018 had allocated EUR 262.65 million for the purchase of vessels used for local public transport, as well as regional maritime, lagoon, lake and river public transport services subject to service obligations or service contracts. Finally, under the PNC's Green shipping fleet renewal project - Sub-investment II, EUR 80 million has been allocated for the renewal of the shipping fleet crossing the Strait of Messina. In particular, the intervention, which is aimed at reducing CO_2 and polluting emissions, concerns: fast vessels for territorial continuity in interconnection with trains to/from Villa S. Giovanni and Messina, new low-emission hybrid vehicles and the hybridisation of three vessels for the transportation of trains owned by RFI.

DIGITAL SERVICES FOR MOBILITY AND LPT MODERNISATION

Sustainable urban mobility can only be achieved through a set of simultaneous actions aimed at improving the efficiency of individual transport modes and systems, increasing the quality and attractiveness of local public transport (LPT), and at effectively integrating different modes into urban transport. However, it is necessary to make it easy for users to create and use multi-modal *'door-to-door'* journeys, which is the only available alternative to the use of private cars. Today, these actions are even more important if compared to the past, as the historical modal imbalance in our cities risks getting worse due to at least two concurrent factors: the possible detachment towards the use of collective transport due to the impact of COVID-19 and the potential attractiveness of future self-driving vehicles (robotaxis).

Concrete actions, which are added to and complement the upgrading and modernisation of fleets and the push towards 'soft' mobility, include: the launch, by means of pilot projects in different urban realities and the creation of national enabling structures, of MaaS services; the use of technological innovation in LPT systems aimed at increasing the quality of services while achieving a higher level of integrability and user-friendliness in integrated MaaS services. These actions are at the core of the PNRR project 'MaaS for Italy', within Component M1C1 (Digitisation, Innovation and Security in PA), and they are worth EUR 40 million. The project provides for:

- the creation of a national platform that enables transport operators to show their data and services according to European standards, and interact with MaaS operators;

- the support to local passenger transport operators digitalisation, with particular reference to telematic management systems and dematerialisation of payment/ticketing and control systems/services;
- the development of MaaS pilot projects in several different metropolitan areas to show the actual potential of MaaS services and promote its dissemination.

On 23 February 2022 the final list for the first step in the implementation of the 'Maas for Italy' project was published. The three 'leading' cities (Milan, Rome and Naples) will be the first ones to adopt the 'Data Sharing and Service Repository Facilities' (DS&SRF) national project. In the three 'leading' cities, an experimentation laboratory ('Living Lab - Cooperative, connected and automated mobility') aimed at testing innovative solutions for local transport (e.g., advanced driver assistance systems, Vehicle-to-X communication technologies, etc.) will be created. Financial support measures will also be granted to local transport operators to digitalise their systems and services (e.g., e-ticketing), so as to promote their integration with the Data Sharing and Repository Facilities (DS&SRF).

II.12 THE GENERAL PLAN FOR CYCLING AND BICIPLAN

The first **General Plan for Cycling** (*Piano Generale della Mobilità Ciclistica*, PGMC) is being drawn up the MIMS, in compliance with what is provided for by the Italian Law No. 2 of 11 January 2018 'Provisions for the development of cycling and the creation of the national cycling network'. The PGMC aims at defining the framework of interventions for the development of cycling both at urban and national level, by identifying objectives and funding lines. In other words, the PGMC shall identify cycle routes of national interest which make up the national Cycling Network 'Bicitalia' and define the resources that can be used to this end.

The PGMC also includes the definition of the framework for each of the three years of the reference period, as well as the financial resources to be allocated in order to fund planned interventions. Therefore, the PGMC defines the guidelines aimed at ensuring an effective coordination between Regions', metropolitan Cities', Provinces' and Municipalities' administrations with regards to cycling and related infrastructures, as well as promoting users' engagement in the planning, creation and management of the cycling network.

Moreover, the PGMC defines the operational guidelines aimed at increasing the safety of cyclists and the modal interchange between cycling, rail transport and LPT, in line with the national integrated model of infrastructures. The core of the model defined in the PGMC is the rapid implementation of a local cycling network which is interconnected with the national cycling network. This can be done by 'upgrading existing infrastructures', which – up until now – have not been integrated in a single national project for sustainable mobility.

In order to achieve these objectives, the PGMC shall define administrative priorities by taking into account any other type of intervention already planned within the national cycling network system. As for resources, the PGMC shall incorporate the framework of objectives funded with the PNRR for the development of the national, urban and metropolitan cycling networks, by taking account the deadlines and funding lines for the implementation of interventions which shall be carried out

between 2021 and 2026. Moreover, the PGMC shall take into account the perspective to be pursued through the identification of resources granted by the EU, such as National Operational Plan (*Piano operativo nazionale*, PON), Regional Operational Plan (*Piano operativo regionale*, POR) and FSC, which can be used in addition to national resources to complete the national cycling network.

The PGMC also has another objective: that is, creating a participatory model for the development of the network in a short time. For this reason, main stakeholders have been constantly involved in order to make mutual decisions, in terms of planning, which shall be confirmed by a joint effort with Regions and Local Authorities playing an essential role in the definition and implementation of the paths themselves. In assessing the priorities of the Plan being drawn up, the starting point is a national strategy promoting the integration between the cycling system, the rail transport and the local public transport, through the development of national tourist cycle routes connected with urban ecosystems, that can also be conceived as a way to meet the needs of new generations. To this end, the aim is to encourage a shift towards safe and daily cycling, by promoting it as an effective alternative to private motorised vehicles and defining appropriate rules of coexistence on roads that can facilitate its development.

URBAN CYCLEABILITY

With regards to the development of cycleability in urban areas, according to Art. 6 of the Italian Law No. 2 of 11 January 2018, Municipalities which are not part of metropolitan cities and Metropolitan cities shall draw up and implement the urban plans for cycling called **'Biciplan'** as sectoral plans of their PUMS. In June 2020, during the Monitoring Board of PUMS held at the MIMS, with the involvement of the ANCI, the University of Studies of Catania, the AIIT (i.e., FIAB's Italian Association for Traffic and Transport Engineering), the **Guidelines for the Drawing up and Implementation of Biciplan** were approved. This document is a useful tool for biciplan planning, and it was developed based on up-to-date and scientifically-sound knowledge in order to provide good practices, which are in line with the planning tools of existing cycle routes.

With regards to legislative or regulatory aspects, there have been legislative updates that have led, among other things, to the introduction of the definition of 'urban cycle lane' and the possibility of identifying a two-way cycle lane (Art. 49 of the Italian Decree-Law No. 76 of 16 July 2020, converted with amendments by Italian Law No. 120 of 11 September 2020). Art. 1-ter of the Italian Decree No. 121 of 11 September 2021, converted with amendments by Italian Law No. 156 of 9 November 2021, provided that electric scooters shall have - inter alia - an audible warning device and that, starting from 1 July 2022, electric scooters marketed in Italy shall be equipped with warning lights for turn signals and brakes on both wheels. Moreover, according to it, electric scooters already in circulation before that date shall be comply with it by 1 January 2024.

Finally, with the Italian Decree-Law No. 228 of 30 December 2021, converted with amendments by Italian Law No. 15 of 25 February 2022, the previous deadline of 1 July 2022 was updated to 30 September 2022 and it was provided that, in residential areas, electric scooters may only circulate in roads with 50km/h speed limit, pedestrian areas, footpaths and cycle routes, cycle lanes, roads where

bicycles have the priority, cycle paths or reserved lanes for bicycles, and in any place whatsoever where bikes can circulate. On the contrary, outside residential areas, electric scooters may only circulate on cycle paths and other paths reserved for bicycles.

As for the allocation of resources to individual territorial entities, in August 2020, the Ministerial Decree No. 344 of 10 August 2020 was issued, and EUR 137.2 million was allocated to metropolitan cities, regional or provincial capitals, and municipalities with a population of more than 50,000 inhabitants for the design and construction of bicycle stations, and for the implementation of interventions aimed at ensuring safety in urban cycling.

Then, with a directorial decree, the resources specially designated for the design and implementation of interventions aimed at connecting railway stations and university centres in seven Italian municipalities (Bari, Milan, Naples, Padua, Palermo, Pisa, Rome) were identified. These resources are added to what has already been provided for by the Budget Law for 2020 with the relevant Fund amounting to EUR 50 million for each of the years from 2022 to 2024 (Italian Law No. 160 of 27 December 2019, Art. 1, paragraphs 47-50).

Within the framework of the PNRR, Mission 2, Component M2C2, with Ministerial Decree No. 509 of 15 December 2021, further EUR 150 million was allocated for the promotion of cycling and, in particular, the construction of additional kilometres of urban and metropolitan cycle paths, to be built in cities hosting major universities and connected to railways or undergrounds by Municipalities.

II.13 PLANS FOR SUSTAINABLE HOUSING

As shown by several studies and analyses, the quality of Italian housing stocks is characterised by many problems. This mostly applies to Southern regions, where inadequacies in terms of technologies and performance are found. The fact that the State has given up – in the last decades – on taking an active part in the planning and building of public and social residences has further weakened the housing stock.

Because of the pandemic, the lockdown and the remote work situation, this weakness, which is now well-established in the country, has been even worsened in terms of distribution, use and flexibility of housing. The matter has become even more urgent and we shall now change the way we look at it: rather than only focusing on ‘housing’, attention shall be paid to cities and territories where new residential projects are going to be built, and this shall be done with a cross-sector and integrated view. Working on housing policies is an opportunity for a broad commitment to a renovation process to be implemented through consistent actions that can lead to a massive change in the ways we look at cities as well as smaller urban settlements.

Needless to say, this perspective shall be linked to the field of environmental sustainability. The renovation of existing buildings shall focus on the recovery and reuse of materials, by decreasing the impacts of decommissioning and reducing land consumption to zero. New buildings are designed to reduce their ecological footprint on the planet, thanks to technologies aimed at limiting energy consumption while maximising living comfort. This shall be done in line with the

DNSH principle, which is at the core of the PNRR action strategies: the architectural changes and urban modifications that will be developed through the projects in the near future shall be in line with the MIMS objectives and shall not have any significant negative impact on the environment. Moreover, they shall be consistent with the UN's and the EU's culture and the way they have been working in recent years, that is in a way that can significantly change the outlook on housing issues: from Agenda 2030 to the European Green New Deal, from The New European Bauhaus to the Next Generation EU.

Quality of housing, urban regeneration and environmental sustainability are the three major interrelated challenges that MIMS is developing through the investment of PNRR resources. In particular, legislative initiatives and funding are an integral part of Mission 2 (Green Revolution and Ecological Transition) and Mission 5 (Inclusion and Cohesion). At the same time, the MIMS has started a series of processes aimed at redefining the concept of regeneration, while integrating tools and possibilities for action. Specifically:

- the Commission for the reform of national spatial planning legislation that MIMS established by Italian Decree No. 441 of 11 November 2021;
- the debate on the new law on urban regeneration, currently taking place in the Italian Senate;
- the reinstatement of the Interministerial Committee for Urban Policies (*Comitato Interministeriale per le Politiche Urbane*, CIPU) promoted by the MIMS (Prime Ministerial Decree of 23 November 2021), which set up a steering committee with the aim of integrating a new cross-cutting approach to urban policies, their coordination and consistency, also in light of the variety of Programmes for urban regeneration under different administrations.

II.13.1 THE INNOVATIVE PROGRAMME FOR THE QUALITY OF HOUSING

With regards to MIMS actions for sustainable housing and urban renovation, the **Innovative National Programme for the Quality of Housing** (*Programma Innovativo Nazionale per la Qualità dell'Abitare*, **PINQuA**), which is now in its operational phase, shall be mentioned for the scale of investments, expected impacts and response of local authorities. According to the PNRR schedule, the projects accepted for funding shall be completed by 31 March 2026, thus significantly integrating the amount of social housing available throughout the country and defining a renewed approach to the issue of housing.

The Programme, which was established pursuant to paragraph 437 of Article 1 of the Italian Law No. 160 of 27 December 2019 and governed pursuant to the Interministerial Decree 395 published in the Official Gazette on 16 September 2020, was created with the aim of supporting and encouraging the development of innovative public residential interventions capable of triggering recovery and redevelopment processes in areas with environmental, economic and social problems. This is at the core of the actions carried out by the MIMS, which - with the new organisation established in June 2021 - has taken on the role of promotion

and coordination through the 'General Directorate for State Housing, Housing Policies, Urban Redevelopment and Special Interventions'.

The High Commission, which was established by Italian Decree No. 474 of 27 October 2020, assessed the 290 proposals (for over 1,500 interventions) received from local authorities, and divided into Ordinary Projects and the High-Performing Pilot Projects category, by taking into account 33 items structured on 6 impact indicators: environmental, social, cultural, urban-territorial, economic-financial, technological-processual impact. This was the first time that work of the High Commission was openly based on the Next Generation EU principle of 'do not cause significant harm to the environment' (DNSH). Pursuant to the Ministerial Decree No. 383 of 7 October 2021, 159 interventions were accepted for funding, for a total of EUR 2.82 billion. The inclusion of the PINQuA in Mission 5 Component 2 Investment 2.3 of the PNRR contributed to the integration of the funds initially provided for, for a total amount of EUR 2.8 billion, of which EUR 477 million of national resources with the current legislation. Specifically, in order to access such funds, Italy has committed itself to build (either as a new construction or redevelopment), in the period from 2021 to 2026, more than 10,000 housing units and 800,000 square metres of public spaces.

FOCUS

The news of PINQuA: a paradigm shift for urban regeneration

The funded projects are intended to show a paradigm shift on housing and urban regeneration issues. The planning intends to go beyond traditional project categories, by organising interventions based on specific topics:

- technological innovation;
- social interaction;
- focus on communities and resilience of territories;
- economic, social and environmental sustainability.

The challenge taken on by the Programme concerns specific aspects of housing (starting from social equity and technological adaptation), as well as the impacts that the renewed focus on these issues can develop, especially with regard to sustainability, regeneration and safety of marginal and suburban areas.

In this way, the topic of 'housing' is interpreted with a progressive vision, as a path/process/project several administrations take/participate in, whose objective, rather than only being the quality of 'housing', is the positive change that interventions aimed at improving the housing stock can trigger, by acting on the socio-economic and physical-spatial assets of contemporary inhabited areas.

This is a cultural challenge, as well as an operational one, whose objective is the regeneration of integrated places and complex communities, through the involvement of local authorities and citizens by means of bottom-up processes. Since there is the need for new modes of action, the MIMS' sustainable housing projects are consistent with the contents of the Urban Agenda for a Sustainable City and those of the National Strategy for Sustainable Development (in particular, with respect to the topic of reducing the use of new land). In short, the funded projects are actual opportunities for urban, social and environmental regeneration, that can lead to a shift in the way we conceive public and social housing as a way to fight housing-related problems.

The attention and sensitivity to these issues is shown by the high number (290) of applications for measures amounting to EUR 4,585 million, which can be divided by proposing bodies as follows: 12 from Regions, 12 from Metropolitan Cities and Municipalities.

Basically, funding requests come from: Northern Italy for 27.8%, Central Italy for 32.6%, Southern Italy and Islands for 39.5%.

271 proposals, for a total of EUR 4.3 billion, were considered eligible by the High Commission. Specifically, 263 of them regarded the ordinary procedure (EUR 3,611 million), while 8 of them were High-Performing Pilot proposals (EUR 655 million). **In view of the available resources, most of which came from the PNRR but also from other forms of public funding**, 151 proposals from the ordinary procedure and 8 pilot projects were considered **eligible for funding**. Eligible and non-fundable projects were placed on a specific list, which may be revised in the event of waiver or other critical issues with respect to the funded projects.

In general, the proposals accepted for funding show a series of factors that make the PINQuA Programme a significant turning point on the topics of urban regeneration and housing, in that it contributes to broadening the field of action to wide-ranging and integrated contexts, radically changes the way we look at urban regeneration by setting resilience, inclusion and safety of settlements among the main objectives, places the question of the redevelopment of existing areas at the core of the debate, takes on social, economic and environmental issues with a view to building sustainable places for integrated communities, gives renewed centrality to marginal and suburban areas, interprets interventions in a synergic way, develops bottom-up participation in decision-making processes, interprets and 'puts on the table' the principles and directions included in national and supranational Programming documents, such as the new European Green Deal, the UN 2030 Agenda, the Urban Agenda for a Sustainable City.

The features of the places involved in the regeneration processes well explain the PINQuA Programme's approach and its ability to act as a tool capable of tackling social, economic and environmental issues, which – in many cases – have been in place for decades. In general, proposals regard very different areas and interventions are carried out at different levels, ranging from landscapes to urban design, architecture and buildings. In some areas, the demand for change is particularly high: i.e., historical and well-established centres; historical villages in inland areas; suburban and semi-suburban areas; residential areas of the '60s and '70s; abandoned places or places that are no longer used, such as former industrial areas, rail yards; areas at high seismic and hydrogeological risk; areas affected by unauthorised development, shanty towns or buildings seized from organised crime.

The fact that the Programme PINQuA was included in the PNRR funding framework led to a partial rescheduling and financial changes:

- by eliminating the Phase 2 (for ordinary procedures), in line with the Guidelines' contents for the drawing up of the Techno-Economic Feasibility Project (*Progetto di Fattibilità Tecnico-Economica*, PFTE) to be used as a basis for the award of public contracts for works by the PNRR and the PNC (Art. 48, paragraph 7 of the Italian Decree-Law No. 77 of 31 May 2021, converted into Italian Law No. 108 pf 29 July 2021);
- by requesting authorities to reschedule and change the proposal, in line with the need to complete the works by 31 March 2026.

This did not apply to Pilot Projects, whose schedule was already in line with the PNRR timetable. Table II.13.1.1 shows the main steps and the updated schedule with respect to the implementation phases.

TABLE II.13.1.1: PINQUA, UPDATED SCHEDULE	
	Date
Assignment and High Commission's first meeting to assess the received proposals (meeting were held weekly)	04.03.2021
End of works by the High Commission	20.07.2021
High Commission's lists were sent to the Managements (with Registration No. 9007)	26.07.2021
Ministerial Decree No. 383 was issued (by means of which the list of beneficiaries and proposals were approved)	07.10.2021
The Ministerial Decree was recorded the Italian Court of Auditors under No. 289	03.11.2021
The Ministerial Decree was published on the MIMS website	04.11.2021
Deadline for authorities to accept the funding and new terms ordered by the PNRR, together with the new schedule for interventions	05.12.2021
Commission's first meeting for the implementation and approval of the updated schedule.	26.10.2021
High Commission's meetings for rescheduling assessment	07.12.2021 14.12.2021 21.12.2021 28.12.2021 11.01.2022
Directorial Decree No. 17524 was issued 'PINQuA - Innovative National Programme for the Quality of Housing – Pilot Proposals' confirmation of funding and advance payment'	29.12.2021
Directorial Decree No. 804 was issued 'PINQuA - Innovative National Programme for the Quality of Housing – Ordinary Proposals' confirmation of funding and advance payment'	20.01.2022
Conclusion of conventions	By 02.08.2022
Completion of works and reporting of projects	31.03.2026

FOCUS

RECURRENT STRATEGIES IN PINQuA PROJECTS

The core elements of the project proposals brought forward for funding are social inclusion and the fight to housing deprivation, in line with the PNRR's M5 ('Social Inclusion') and the Agenda 2030's people-related strategic choices and objectives, and taken up by the Italian National Strategy for Sustainable Development (*Strategia Nazionale per lo Sviluppo Sostenibile*, SNSvS). Housing is interpreted in a broad and transversal way, which is oriented towards providing the city with new living spaces (i.e., housing and related neighbourhood services), while carrying out transformative actions at different scales of intervention. The projects suggest that degradation and depopulation can only be tackled in this way. Generally, places are fragile because of the remoteness of their location, as well as social and environmental conditions. As a result, some prevailing approaches emerge:

- strategic actions applied to specific areas and important areas at local level (strategic intersections);
- actions carried out in complex urban systems, which can support large-scale interactions;
- actions carried out in urban contexts which can be integrated and complementary at the same time, even though said urban areas are far from each other.

Generally speaking, PINQuA projects define impacts on a large scale, in order to tackle physical, environmental and social issues, and become 'sparks' of high-quality transformative processes for all Italian territories. Interventions range from demolition and reconstruction to the definition of projects aimed at the maintenance, recovery and regeneration of existing housing stock. On the one hand, such objectives shall be pursued through a significant '*technological*' action aimed at renewing systems and service infrastructures by stressing on environmental sustainability and resilience. On the other hand, internal and external distribution layouts shall also be renewed in line with the new demand for housing, which has increased due to the pandemic. Much more attention shall also be paid to ground floors'

permeability and porosity, and requests regarding privacy issues and the relationship between what is public and what is private shall be rediscussed.

The innovative elements provided by the projects are the result of new expectations regarding:

- the need for radical regeneration interventions on public housing stock through energy retrofitting and technological adaptation, in line with the proposals regarding ecological the ecological transition and physical, social and economic sustainability of the territory, according to an inclusive and sustainable city model;
- the need for new kinds of housing that can make it possible to rethink traditional 'models' and meet new housing needs, also as a result of new social needs;
- the demand for connectivity as an in-house factor existing in residential areas, in line with an innovative vision of the public and social residential model (digital transition);
- the importance of an attentive and environmentally-sensitive design stressing on open spaces as well as public and private urban greenery, also as a way to create a synergy with the environment in which social housing areas are located;
- the attention to the regeneration of degraded areas (i.e., decommissioned or under-used spaces) to bring about a kind of development that can safeguard lands;
- the improvement of the quality of life in terms of urban welfare, also by means of active participation and the involvement of citizens in social dynamics;
- the need for new definitions of local mobility arrangements, especially in terms of cycle and pedestrian paths and the demand for different kinds of services to support residential areas, towards a '15-minute city' model;
- a boost for public interventions and private operators integration, above all in terms of investment funds and the third sector (private operators make up for about 25% of the mobilised money);
- the attention paid to the population as an element that can lead to the definition of projects themselves, in the view of a strong interaction between physical/environmental set ups and socio/economic aspects.

II.13.2 THE PROGRAMME 'SAFE, GREEN AND SOCIAL: PUBLIC HOUSING REDEVELOPMENT'

Together with the PINQuA, the MIMS has started further Programmes aimed at achieving innovation, regeneration and sustainability objectives in the relevant public construction industry. Among these is the project **'Safe, Green and Social: Public Housing Redevelopment'**, which is an ERP Programme *defined and funded by the National Plan which is complementary to the PNRR*. The Prime Ministerial Decree of 15 September 2021 implementing the Italian Decree-Law No. 59 of 6 May 2021, converted with amendments by Italian Law No. 101 of 1 July 2021, identifies the indicators for the allocation – on a regional basis – of two billion euros of resources designated for public housing development, provides for the procedures and deadlines for the eligibility of interventions for funding, regulates the procedures for the disbursement of funding, and allocates to regions and autonomous provinces the resources available between 2021 and 2026.

The Programme aims at taking on Italian public housing's physical, social and infrastructural issues (about 710k private housing or managed by former ICAP Companies). Implementing subjects are the institutions managing housing stock

through the Regions. The objective is to carry out a regeneration of this housing stock to make housing seismically safer, more energy efficient and less polluting, as well as socially fairer. The ERP Programme provides for:

- **energy efficiency interventions** on an ERP building surface of 4.5 million square metres, equal to about 1/10 of the whole surface of the public housing stock in Italy;
- **a reduction of energy consumption** of about 27,000 toe, equivalent to a saving of 35% of the average consumption per dwelling covered by the intervention, that is approximately 1.8 toe;
- **a reduction of CO_2 emissions** into the atmosphere of approximately 80,000 tonnes/year;
- **seismic improvement and retrofitting** over an area of 1.4 million square metres (1/30);
- **an increase of ERP residential areas** of 450,000 square metres.

Following the issue of the Prime Ministerial Decree, with Directorial Decree No. 224 of 5 November 2021, it was ordered, pursuant to Article 4, paragraph 2, letter a) of such Prime Ministerial Decree, the transfer of 200 million euros to Regions and Autonomous Provinces in 2021, as an advance payment of the expected 30%. The remaining amount, i.e., 400 million euros, by means of which 30% of the allocated funding will be transferred, shall be disbursed after the issuance of the directorial decree allocating the chapters for financial management 2022. *As per schedule, by 15 January 2022, the regional provisions approving the intervention Plans eligible for funding **approved** by the MIMS together with the Department 'Casa Italia', were received.*

TABLE II.13.2.1: SCHEDULE YEARS 2021 – 2026

REGIONI	Coeff.	2021	2022	2023	2024	2025	2026	TOTALE
Piemonte	4,27	8.542.707,73	17.085.415,46	14.949.738,52	14.949.738,52	14.949.738,52	14.949.738,52	85.427.077,28
Valle d'Aosta	0,14	270.365,74	540.731,49	473.140,05	473.140,05	473.140,05	473.140,05	2.703.657,43
Lombardia	12,65	25.293.724,53	50.587.449,06	44.264.017,93	44.264.017,93	44.264.017,93	44.264.017,93	252.937.245,29
P.A Trento	0,80	1.591.441,44	3.182.882,87	2.785.022,51	2.785.022,51	2.785.022,51	2.785.022,51	15.914.414,37
P.A Bolzano	0,90	1.806.893,14	3.613.786,28	3.162.063,00	3.162.063,00	3.162.063,00	3.162.063,00	18.068.931,42
Veneto	4,99	9.970.572,73	19.941.145,47	17.448.502,28	17.448.502,28	17.448.502,28	17.448.502,28	99.705.727,33
Friuli V. Giulia	3,09	6.187.585,12	12.375.170,23	10.828.273,96	10.828.273,96	10.828.273,96	10.828.273,96	61.875.851,17
Liguria	1,77	3.534.190,96	7.068.381,91	6.184.834,17	6.184.834,17	6.184.834,17	6.184.834,17	35.341.909,56
Emilia Romagna	6,19	12.381.347,15	24.762.694,31	21.667.357,52	21.667.357,52	21.667.357,52	21.667.357,52	123.813.471,53
Toscana	4,67	9.346.635,36	18.693.270,72	16.356.611,88	16.356.611,88	16.356.611,88	16.356.611,88	93.466.353,62
Umbria	1,83	3.665.159,17	7.330.318,33	6.414.028,54	6.414.028,54	6.414.028,54	6.414.028,54	36.651.591,66
Marche	3,14	6.276.914,47	12.553.828,94	10.984.600,32	10.984.600,32	10.984.600,32	10.984.600,32	62.769.144,70
Lazio	12,01	24.016.959,11	48.033.918,22	42.029.678,44	42.029.678,44	42.029.678,44	42.029.678,44	240.169.591,09
Abruzzo	2,33	4.656.405,85	9.312.811,70	8.148.710,24	8.148.710,24	8.148.710,24	8.148.710,24	46.564.058,52
Molise	0,70	1.402.726,13	2.805.452,25	2.454770,72	2.454770,72	2.454770,72	2.454770,72	14.027.261,25
Campania	14,78	29.555.512,13	59.111.024,25	51.722.146,22	51.722.146,22	51.722.146,22	51.722.146,22	295.555.121,25
Puglia	5,63	11.266.084,41	22.532.168,82	19.715.647,72	19.715.647,72	19.715.647,72	19.715.647,72	112.660.844,10
Basilicata	1,30	2.608.801,26	5.217.602,52	4.565.402,21	4.565.402,21	4.565.402,21	4.565.402,21	26.088.012,60
Calabria	4,89	9.772.407,59	19.544.815,19	17.101.713,29	17.101.713,29	17.101.713,29	17.101.713,29	97.724.075,93
Sicilia	11,67	23.334.733,63	46.669.467,27	40.835.783,86	40.835.783,86	40.835.783,86	40.835.783,86	233.347.336,34
Sardegna	2,26	4.518.832,36	9.037.664,71	7.907.956,62	7.907.956,62	7.907.956,62	7.907.956,62	45.188.323,57
Totale	100,00	200.000.000,00	400.000.000,00	350.000.000,00	350.000.000,00	350.000.000,00	350.000.000,00	2.000.000.000,00

II.13.3 DRAFT LAW ON URBAN REGENERATION

The MIMS is carrying out a strong political action aimed at defining and approving the new national law regarding urban regeneration. This path has led to the Italian Draft Law No. 1131 (unified text for draft laws Senate Act No. 1131, 985, 970, 1302, 1943, 1981), currently being discussed by the Senate's thirteenth permanent Commission (territory, environment, environmental assets). Its approval would contribute to strengthening the national policies for urban regeneration built on a strategy shared with Regions and local authorities, in compliance with the authorities laid out in Title V of the Constitution. For this reason, the Draft Law being discussed:

- streamlines and updates the industry's regulations, establishing the basis for a specific regulatory framework for urban regeneration;
- builds a unitary vision of interventions based on integration, resilience, social cohesion, quality, sustainability, safety and valorisation of existing housing stock, which can boost social infrastructures and where the lives of citizens as well as the places they live in are placed at the core of the process;
- identifies a governance for towns' policies, as a way to make the dialogue between players interested in the processes easier.

The text, which is made up of 14 articles, *'looks at urban regeneration as a tool to recover existing housing stock in order to improve its quality, energy and water efficiency, seismic safety and technological equipment, promote integrated and sustainable urban policies so as to achieve social cohesion, environment and landscape protection as well as ecosystem functions of the land'*.

In order to achieve this objective, together with the EU objective for no net land take by 2050, a set of actions that the law intends to consider as a priority at national level shall be carried out. Specifically:

a) **promoting the building reuse of urbanised and productive areas** with heterogeneous functions and disorganised or unfinished buildings, as well as building complexes and public or private buildings in a state of decay or abandonment or decommissioned or unused or in the process of being decommissioned or relocated, by encouraging their physical and functional redevelopment, environmental sustainability, replacement and improvement of the overall urban and architectural aesthetics;

b) **improving the permeability of soils in the urban fabric**, through the principle of reuse and hydraulic invariance, also in order to mitigate the effects of climate change in cities, favouring environmental rebalancing, ecological sustainability, the presence of green areas and reforestation, the implementation of technological, architectural and engineering solutions for seismic safety and energy efficiency, and the limitation of phenomena such as heat islands, extreme weather events and hydrogeological instability, as well as the increase of biodiversity in urban regeneration areas;

c) **creating strategic infrastructures for a sustainable development of the territory** and to carry out works for the defence and securing of land and buildings located in areas at high hydrogeological risk;

d) **give priority to urban densification interventions in order to improve public services**, also with the aim of pursuing *'no land take'*;

e) **applying the 'no land take' criterion through the balancing of ecosystem services** in municipal territories, hydraulic invariance, renaturalisation, removal of sealing or recovery of land which was already used;

f) **improving citizens' quality of life** in historical centres as well as in suburbs, through the functional integration of residences, economic activities, public and commercial services, work, social, cultural, educational and teaching services and activities promoted by public and private subjects, as well as spaces, where people can spend their free time gathering and socialising, by paying particular attention to people with disabilities;

g) **protecting historical centres'** identities, cultural heritage and landscape from any alteration caused by tourism pressure, abandonment as well as exclusion brought about by sudden social recomposition;

h) **integrating sustainable mobility systems with the urban fabric of areas where urban regeneration is being carried out,** with particular reference to public transport network, cycleability and pedestrian paths;

i) **encouraging the implementation of social housing interventions** in order to meet weak housing demand and social cohesion;

j) **encouraging the active participation of citizens** in the planning and management of urban regeneration Programmes;

k) **attracting private investments** aimed at achieving the public objectives of urban regeneration;

l) **giving value to regional regulations already adopted** on urban regeneration in case they are in line with the principles of this law, and adapting further regional legislation to it.

Article 4 introduces the **National Programme for Urban Regeneration** as a governance tool aimed at achieving the objectives, by implementing (Article 10) a relevant national Fund.

II.13.4 INVESTMENTS ON PRISON AND JUDICIAL INFRASTRUCTURES

With the Italian Decree-Law No. 59 of 6 May 2020, converted with amendments in the Italian Law No. 101 of 1 July 2021, No. 101, *'Urgent measures regarding the Fund complementary to the National Recovery and Resilience Plan and further urgent measures for investments'*, the *'National Plan for Complementary Investments'*, which is aimed at integrating, through national resources, the PNRR's interventions, was approved.

The funding is implemented through the construction and improvement of wings and spaces for penitentiary facilities for adults and minors with the following schedule.

TABELLA II.13.4.1: ANNUAL ALLOCATION

Funding amount (EUR million)	Annual allocation (EUR million)				
	2022	2023	2024	2025	2026
132.90	2.5	19	41.5	57	12.9

Within the PNRR's implementation guidelines, the line *'M2C3-Investment 1.2 - Buildings construction, redevelopment and strengthening of real estate for justice administration'* designated to the streamlining of judicial facilities was identified and funded.

II.14 PLAN FOR THE SAFEGUARD OF WATER RESOURCES

The MIMS, in line with its competences and functions regarding dams and water infrastructures, has undertaken to be the strategic coordinator in the planning process of infrastructural interventions regarding primary water supply as a whole and for all the industries. This activity is carried out together with other essential players, with particular reference to the MITE for environmental regulation and energy policies, the Italian Ministry of Agricultural, Food and Forestry Policy (*Ministero delle Politiche Agricole, Alimentari e Forestali*, MIPAAF) for the planning of irrigation infrastructure needs, the Drainage Basins' District Authority for the planning of water resources on a large scale, and the Italian Regulatory Authority for Energy, Networks and Environment (*Autorità di Regolazione per Energia, Reti e Ambiente*, ARERA) for the economic regulation and to run checks on performance efficiency.

The sustainable use and protection of water resources is one of the pillars of the action to fight the climate crisis, implemented through a National investment plan based on an integrated and unified vision capable of guiding the public funding (and co-funding) of strategic infrastructures for primary water supply for civil, irrigation, industrial and energy purposes. The National Plan reform, which has been recently implemented (see focus below), was one of the commitments taken on by the Italian government in the PNRR, also in order to ensure a long-lasting support to the industry, to protect the environment and the quality of the final service provided to different users, and for the infrastructural and economic development of a strategic industry for the country.

In this perspective, the **National Plan for Infrastructural Interventions and Safety in the Water Industry** (provided for by Italian Law 205/2017, Art. 1, paragraphs 516 and following, as reformed by the Italian Decree-Law No. 121 of 10 September 2021, converted by Italian Law No. 156 of 9 November 2021), initially with EUR 100 million available for 10 years, plus further financial sources, up to a recent allocation in the last Budget Law for a total of EUR 2,017.21 million planned from 2018 to 2033 (as per Table II.14.1), is an essential step and shows how committed the MIMS and the Italian Government are to manage water resources in a sustainable way and to properly develop relevant infrastructures in order to ensure water supply – even more in a context affected by climate change.

FOCUS

National Plan for Infrastructural Interventions and Safety in the Water Industry

PNRR – M2C4 - Reform 4.1: Regulatory simplification and enhanced governance for investments in water supply infrastructures

Among the reforms falling within the remit of MIMS, for the water industry, there is the simplification of regulations and the strengthening of governance for the implementation of investments in water supply infrastructures. The planning framework was reformed by the Italian Decree-Law No. 121 of 10 September 2021, converted by Italian Law No. 156 of 9 November 2021.

For the planning and implementation of the interventions needed to mitigate the damages due to drought and to promote the strengthening and adaptation of water infrastructures, also in order to increase the resilience of water systems to climate change and reduce the waste of water resources, **the National Plan for infrastructural interventions and for safety in the water industry** is established, and shall be implemented with the involvement of the Regulatory Authority for Energy, Networks and Environment, the MiTE, the MIPAAF, the MIC and the MEF.

The new Plan replaces and brings together the '*Reservoirs'* and '*Aqueducts*' sections of the previous National plan of interventions for the water industry into a single planning and Programming tool. This will be the main planning tool for strategic water supply infrastructures, with a medium-long term vision, and will be implemented by the MIMS in several stages depending on the financial resources which will be progressively available. The MIMS shall also monitor the implementation of the interventions and define additional measures for the implementing subjects to solve any critical issue in the planning and implementation of interventions.

Implementing decrees are being drawn up in order to define the methods and criteria for drafting and updating the Plan as well as implementing it.

The MIMS, in order to further support the policies already undertaken for the development of the water industry, intends to increase the allocation of the priority **works design fund** to allow the funding of the planning (at PFTE level) of particularly relevant water infrastructures, which are part of the National Plan for Infrastructural Interventions and Safety in the Water Industry, and which have as implementing entities subjects that are not able to provide for the development of the design with independent resources.

TABLE II.14.1.: NATIONAL PLAN FOR INFRASTRUCTURAL INTERVENTIONS AND FOR SAFETY IN THE WATER INDUSTRY – FUNDING SCHEDULE

Anno	Source (1) (EUR million)	Source (2) (EUR million)	Source (3) (EUR million)	Source (4) (EUR million)	Source (5) (EUR million)	Source (6) (EUR million)	Total (EUR million)
2018	50.00	-	-	-	-	-	50.00
2019	50.00	60.00	40.00	1.19	2.25	-	153.44
2020	50.00	60.00	40.00	17.80	7.00	-	175.80
2021	50.00	60.00	40.00	15.00	1.00	-	166.00
2022	50.00	60.00	40.00	25.00	8.00	40	223.00
2023		60.00	40.00	25.00	8.75	80	213.75
2024		60.00	40.00	20.00	8.86	80	208.86
2025		60.00	40.00	50.00	8.98	80	238.98
2026		60.00	40.00	10.00	8.63	80	198.63
2027		60.00	40.00	15.00	9.40	80	204.40
2028		60.00	40.00	12.80	9.65	-	122.45
2029				9.40	10.58	-	19.98
2030					10.89	-	10.89
2031					10.90	-	10.90
2032					10.90	-	10.90

2033					10.23	-	10.23
TOTAL	250.00	600.00	400.00	201.19	126.02	440.00	2.017.21

Funding sources: (1) Italian Law 205/2017, Article 1, paragraph 523; (2) Italian Law 145/2018, Article 1, paragraph 155 section Reservoirs; (3) Italian Law 145/2018, Article 1, paragraph 155 section Aqueducts; (4) Italian Law 205/2017, Article 1, paragraph 1072; (5) Italian Law 145/2018, Article 1, paragraph 95, with changes by the MEF as per the public finance manoeuvre for the three-year time 2020-2022; (6) Italian Law 234/2021.

II.15 WORKS UNDER EXTRAORDINARY ADMINISTRATION: THE PLAN TO ACCELERATE INTERVENTIONS

The need to rapidly accelerate the implementation of public investments has led the Government to use an extraordinary tool, which, based on the so-called Italian Decree-Law '*construction sites break through*' (Italian Decree-Law No. 76 of 16 July 2020, converted with amendments by Italian Law No. 120 11 September 2020), makes it possible to appoint one or more Extraordinary Administrators with derogation powers to the tenders code for some kinds of works. Works can be identified based on the following criteria:

- works provided for in strategic planning documents, that are in synergy with the PNRR;
- works at an advanced planning stage;
- works whose realisation will lead to significant positive socio-economic and environmental impacts for the territories concerned.

During 2021, this regulatory framework made it possible for the Government to take measures that led to the placing into receivership of 102 works and the appointment of 39 extraordinary administrators. A total of 31 railway, 32 road, 3 fast mass transport, 3 port, 11 water and 22 state building works have been identified.

In March 2022, the Government sent to Parliament a proposal for fifteen new complex works to be placed into receivership, that is six railway infrastructures, three road infrastructures, two port infrastructures, two state building interventions, one water infrastructure intervention and one fast mass transport intervention. This is the third and final stage of the process of placing into receivership, under the procedure established by the *'construction sites break through'* decree.

In order to ensure that such processes are carried out fast, and workers can work safely, and in compliance with the principles under Art. 4 of the Italian Decree-Law No. 50 of 2016 guaranteeing lawfulness and transparency, two memorandums of understanding were undersigned: the first one, on 11 December 2020, was between the Italian Minister of Infrastructure and Transport and trade unions of the industry, while the second one, on 2 March 2022, was between the Ministry of Infrastructure and Sustainable Mobility and the Chairman of the National Anti-Corruption Authority (*Autorità Nazionale Anticorruzione*, ANAC).

Finally, the MIMS set up a Contact Point within the Ministry itself to support the work of the extraordinary administrators, facilitate the settlement of any critical issues and direct their activities towards sharing best practices that guarantee the use of modern criteria to reduce the environmental impact of works, involve local communities in public debate, etc.

In order to ensure the highest level of transparency for the initiated process, also in compliance with what is established by the competent parliament Committees, the Government:

- **has drawn up the Annual Report for the Parliament** summarising the main results recorded through the continuous monitoring of the works placed into receivership, with an appendix containing summaries written by each Administrator, which provide the most relevant information on the implementation stage, the initiatives adopted and soon to be adopted by the Administrators themselves, also in relation to the critical issues identified during the intervention execution process, for all 102 interventions. The Report, as required by the regulations, was sent to the Parliament in December 2021;
- **activated a Web Platform,** by means of which detailed information regarding individual works was made available, with particular reference to the progress of the procedure. Specifically, the platform provides a set of useful information to interested subjects (i.e., institutions, civil society, Administrators, political authorities), thus making it possible to: access updated written and multimedia information as well as documents regarding specific works; assess the progress of planned and actual procedural stages of projects making up the works, together with physical, social and environmental indicators useful to understand each intervention's impact; calculate summary indicators regarding the stages of the process.

Moreover, in compliance with a specific provision provided for by the abovementioned Italian Decree-Law, the Government **placed into receivership some interventions regarding Sardinia's and Sicily's road network**. Similarly, the derogation powers allowed by the legislator in the abovementioned legislation were used, and **eight infrastructural, road and railway interventions needed to ensure - within the time limits - that 2026 Milan-Cortina Winter Olympics can be accessed easily**, also considering the importance of an effective planning and scheduling of interventions intended to be permanent driving forces for long-lasting development rather than only being conceived for the event itself, were placed into receivership.

III. PRIORITY INTERVENTIONS AND PROGRAMMES FOR THE DEVELOPMENT OF THE COUNTRY

III.1 AN OVERVIEW

In this paragraph, a summary of the investments for priority infrastructures for the development of the Country, in line with the guidelines defined in Paragraph I.1 and with the selection process defined in Paragraph I.2, with a view to sustainable development, are reported.

The economic values reported for all the investment discussed in this chapters **do not take into account, at the time being, the increases due to the extraordinary increase in the prices of some of the most significant building materials**. With regards to this topic, and in order to avoid related negative consequences for economic operators and commissioning bodies, Art. 1-septies of Italian Law No. 106 of 23 July 2021, which converted, with amendments, the Italian Decree-Law No. 73 of 25 May 2021 (i.e., the so-called *Decreto Sostegni bis*, i.e., 'Support Decree bis'), established the first urgent provisions regarding building materials price compensation in public supply contracts, also notwithstanding Art. 133 of the Italian Decree-Law No. 163/2006 and Art. 106, paragraph 1, lett. a) of the Italian Decree-Law No. 50/2016. In light of the debate with institutional and entrepreneurial stakeholders, further measures for the definition of proper price compensations that can allow changes in the costs of interventions currently underway or planned ones are being studied.

In the following Tables, in line with the previous DEF Annexes, investments are divided into **priority interventions** (i.e., individual priority infrastructures for the development of the Country), and **intervention Programmes** (i.e., set of consistent interventions carried out throughout the country and aimed at achieving the sustainable development goals defined in the guidelines. The Tables also include the interventions that required the drawing up and/or completion of feasibility projects, even in the event of a lack of funding for their implementation.

Both the Summary tables and detailed ones of the following paragraphs report the updates in terms of priority investments **costs**, **available funding already allocated** at the time being (coming from international and national sources as well as tariff revenues, as in the case of motorways and airports) and **further resources needed**. Instead, in the calculation of the economic value of the overview, interventions at a not-advanced project review stage, whose costs could be cut, as well as those being subject to feasibility projects which are still at their initial stages, are not reported – even though they are reported in the detailed tables of the following paragraphs.

Table III.1.1 refers to the **priority transport infrastructures**, i.e., the interventions and Programmes needed for the completion, implementation of safety measures, environmental compatibility and technological adaptation of the I Level

Italian National Integrated Transport System (*Sistema Nazionale Integrato dei Trasporti*, SNIT) as defined in Paragraph I.3.2. Specifically, **considering a total economic value of EUR 279.4 billion for investments, the further resources needed amount to EUR 70.4 billion.** This deficit represents 25% of the total cost and is six percentage points lower than that reported in last year's DEF Annex, considering a total economic value for investment that is 8.1% higher than that of 2021 (EUR 279.4 billion vs EUR 258.7 billion).

TABLE III.1.1: SNIT'S PRIORITY COSTS (COSTS, RESOURCES, RESOURCES NEEDED)

Modes	Cost (EUR billion)	Allocated resources (EUR billion)	Further resources needed (EUR billion)
Roads and motorways	83.5	63.2	20.3
Railways with urban hubs	147.4	104.0	43.4
Harbours	10.1	9.2	0.9
Airports	3.2	3.2	0.0
Fast mass transport in metropolitan cities	32.6	28.8	3.8
Cycle routes	2.6	0.6	2.0
TOTAL	**279.4**	**209.0**	**70.4**

With respect to the same Table published in 2021 DEF Annex, some differences can be found: as for the railway industry, e.g., the increase of the network's resilience, non-routine maintenance, and technological upgrade, only the further resources needed for the for period of the contract (2022-26) were taken into account and compared to the available resources, and this has resulted in a reduction in the overall costs and the resources needed for the industry. Moreover, cycle routes were included in the Table because, in the meanwhile, relevant resources have been allocated and the implementation stage is underway.

Apart from such differences, it can be stated that, with respect to 2021, **considering the increase in the overall costs of priority works, the percentage of available funding has increased**, and further resources have been allocated to individual investments of the PNRR and the PNC, as well as to additional resources provided by the budget law for 2022. Moreover, these have not been entirely considered yet, since not all of them have been allocated to specific interventions or Programmes. For example, the Table does not include the resources that will fund the updating of the Contracts planned with ANAS (i.e., increase of EUR 4.4550 billion) and RFI (i.e., increase of EUR 5.750 billion), which have not been undersigned yet. On the other hand, the additional resources resulting from the same law, and allocated for the development of fast mass transport for metropolitan cities are included (the increase of the overall costs referred to this mode of transport is due to the fact that further projects presented as a result of 'Notice 2 for the funding of fast mass transport' as well as new projects for the development of the underground network, which are mostly funded by the budget law, were included in the list).

Table III.1.2 refers to **water infrastructures**. With respect to the overall further investments needed for Italian water infrastructures in order to be in line with international standards, that is estimated to amount to about EUR 12 billion (defined considering assessments carried out by District Authorities and the Area Management Bodies at the end of 2020), to which EUR 359 million for the completion

of the financial of water works placed into receivership shall be added, **investments for about EUR 1,298.5 million have been allocated with the National Plan for Infrastructural Interventions and Safety in the Water Industry** (considering an overall available funding of EUR 2,017 million). Moreover, EUR 468 million of the FSC 2014-2020 for the implementation of the Operational Plan for Dams have been allocated, and EUR 187 million provided for the Operational Programme for water resources are still available. Finally, resources of the PNRR for EUR 1,800 million (measures M2C4-I4.1 and M2C4-I4.2), the REACT-EU for EUR 482 million and the FSC 2021-2027 for EUR 442 million have been planned. At the time being, the increases due to the extraordinary increase in the prices of some of the most significant building materials have not been taken into account.

Therefore, the amount of available resources, which have already been allocated or planned for MIMS priority interventions and Programmes for the water industry is EUR 4,677.5 million. The further resources needed, that is about EUR 7.7 billion, will be updated this year during the drawing up of the new **National Plan for Infrastructural Interventions and Safety in the Water Industry** (PNRR reform).

TABLE III.1.2: INVESTMENTS ON WATER INFRASTRUCTURES

	Cost (EUR million)	Allocated resources (EUR million)	Further resources needed (EUR million)
National Plan for Infrastructural Interventions and Safety in the Water Industry (former National plan for interventions in the water industry)		590	
Operational Plan for Dams - FSC 2014-2020		468	
Operational Programme for water resources		187	
PNRR–M2C4–I4.1 primary water infrastructures for security of water supply (PNRR additional resources)		900	
PNRR–M2C4–I4.1 primary water infrastructures for security of water supply (resources to be planned under the legislation in force to be drawn from the National Plan for Infrastructural Interventions and Safety in the Water Industry)		708.5	
PNRR–M2C4–I4.2 reduction of losses in water supply networks, digitalisation and monitoring of networks (public notice underway)		900	
National operational plan for infrastructures and networks 2014-2020 – ASSE IV "REACT-EU"		482	
FSC 2021-2027 – intervention guidelines for water infrastructures		442	
TOTAL	**12,359**	**4,677.5**	**7,681.5***

** With respect to such additional resources needed, EUR 718.71 million from the National Plan for Infrastructural Interventions and Safety in the Water Industry are available because they still have not been allocated and are being planned.*

Table III.1.3 regards the **infrastructures for sustainable construction** and shows **the main Programmes (most of them are already funded and resources are being allocated)** described below, for a total of about EUR 6.7 billion. In this case, the increases due to the extraordinary increase in the prices of some of the most significant building materials have not been taken into account either.

TABLE III.1.3: INVESTMENTS ON SUSTAINABLE CONSTRUCTION

	Cost (EUR million)	Allocated resources (EUR million)	Further resources needed (EUR million)
Innovative National Programme for the Quality of Housing	4263.4	2816.8	1446.6
Programme 'SAFE, GREEN AND SOCIAL – public housing redevelopment'	2000.0	2000.0	0.0
Programme 'Buildings construction, redevelopment and strengthening of real estate for justice administration'	132.9	132.9	0.0
Programme 'major works' to real estate for justice administration'	310.0	310.0	0.0
TOTAL	**6,706.3**	**5,259.7**	**1,446.6**

The **funding channels**, which provided the economic resources and, as a result, ensured the sustainability of the Programmes presented in this document, are the following ones:

- the *Next Generation EU* fund that funded the interventions contained in the PNRR, approved by the EU Commission;
- the national fund, which funded the PNRR's National Plan for Complementary Investments (Italian Decree-Law No. 59 of 6 May 2021);
- the budget variance (Art. 4 of the Italian Decree-Law No. 59 of 6 May 2021);
- funding resulting from budget law as well as further national regulations and, specifically, the resources of the '*Fund for investments funding and infrastructural development of the Country*' (in short: '*Investment Fund*'), provided for by Article 1, paragraph 140, Italian Law 232/2016, and then funded again through paragraph 1072 of 2018 Italian Budget Law, by means of the '*Fund for the boosting in investments by central state administrations and the development of the Country*' established by Article 1, paragraph 14 of 2020 Italian Budget Law, and further resources directly allocated to the relevant chapters of the budget laws for 2021 and 2022; just like this document, such fundings are characterised by long-term planning, and closely interact with the objectives and strategies defined herein, with year-by-year rescheduling also based on actual spending capacity;
- available funds originating from projects reviews;
- the Fund for Development and Cohesion (*Fondo per lo Sviluppo e la Coesione*, FSC) 2014-2020 and the advance payment FSC 2021-2027 for the funds allocated to priority infrastructures;
- CEF 2014-2020 Funds (*Connecting Europe Facility*), if they are allocated to priority structures;
- PON 2014–2020 structural Funds, if they are allocated to priority structures;
- the Programme of Action and Cohesion 2014-2020, which is complementary to PON, 2027 for the funds allocated to priority infrastructures;
- the contribution of private resources, for motorway and airport concessions;
- co-funding regional and local funds, also drawn from European funds, if they are allocated to priority structures (in particular, harbours and fast mass transport).

Instead, with regards to **feasibility projects** and project review, resources are made available by the Fund provided for by Art. 202, paragraph 1, letter a of the Italian Decree-Law 50/2016, with a first allocation of EUR 110 million for the years 2018-2019-2020 and a second allocation of EUR 107 million for the years 2021-2022-2023, in order to improve the ability to plan and review the planning of expenses regarding the planning of priority infrastructures of national interest.

III.2 RAILWAYS

The interventions for the development of railway infrastructures and services pursue three core functional objectives:

- **enhancement of long-distance passenger services**, with the development of High-Speed trains from North to South and by speeding up transversal routes, aimed at expanding the connectivity of the system so as to be effective and consistent with the multipolar structure of the Italian territory;
- **the integration with regional transport,** which is destined to play not only an essential role in the support to local and metropolitan mobility demand, but also to boost fast transport links at national level, by making them more attractive;
- **the enhancement of rail freight transport,** according to a multimodal design at the core of which there are existing inland terminals and harbours, with the progressive development of the most high-quality and productive services throughout peninsular Italy's main industrial sectors.

Even though a Programme for the development and enhancement of the railway system has been planned and funded thanks to the country's and European resources already governed by the Programme Contracts drawn up with the networks' manager and those resulting from the Next Generation EU (PNRR), it is necessary to provide for the **integration with other transport modes** (underground/urban tramways, maritime and internal navigation, buses) in order to ensure a proper level of accessibility throughout the Country (including rural areas and small islands) and fill the existing infrastructural gaps, thus making it possible to fully access infrastructures and more sustainable passenger transport services, as well as effective and efficient freight transport services, while being in the middle of a transition in which digitalisation and the boost to innovation are self-evident in all the transport industry.

As a matter of fact, in the future, the increase in the competitiveness of rail freight transport, due to the full implementation of the European Freight Train (*Treno Europeo Merci*, TEM), will have to go hand in hand with the increase of road transport quality and competitiveness (let us think about the positive impacts that the development of assisted driving and self-driving tools can have).

Integrated, multimodal mobility and logistics planning can significantly contribute to the achievement of sustainability goals, in particular those related to modal balance and decarbonisation.

The services provided to end users may also be improved by means of technological update interventions and through the regulation and management of the existing system, by enhancing existing infrastructures and making it more widely

used. On the other hand, the current capacity of railway infrastructures, which shall be considered as a relevant factor much more before it reaches the saturation point, and above all when peak demand is at certain times of the day both for the passenger and freight market, shall be taken into account. In these cases, apart from infrastructural and technological upgrade, there is the **need to coordinate and involve stakeholders in order to look for organisational assets that can make the best of the available capacity**.

In the following Tables, in line with the guidelines envisaged in the '*Strategic document for passengers and freight railway mobility*' sent by MIMS to the Chambers on 31 December 2021 and currently being approved, the **priority Programmes and interventions associated to the 2020-2021 update of the 2017-2021 Programme Contract between MIMS and RFI** are shown. Both for Programmes and interventions, overall costs, available funds – as defined in the abovementioned Programme Contract –, and further resources needed are shown. With regards to available resources, the ones included in the PNRR (only the new ones), in the Complementary National Plan and in the advance payment by the Fund for Development and Cohesion (FSC) 2021-2027, approved by the CIPESS on 15 February 2022 are shown. Instead, the resources for the funding of the 2022-2026 Programme Contract - 'Investment' originating from the Italian Budget Law for 2022, in the amount of EUR 5.570 billion was not taken into account because they have not yet been allocated for specific Programmes and interventions, except for the resources which have already been allocated, based on paragraph 394 of the same Law, for the 'promotion of high-speed and high-capacity transport on Adriatic railway, also in order to be included in Core Network of the Trans-European Transport Network (TEN-T)'.

As stated above, the increases due to the extraordinary increase in the prices of some of the most significant building materials have not been taken into account.

As for the Programmes, in the 2017-2021 Programme Contract, the further resources needed takes into account the years following the end of the Contract itself (both the period 2022-2026 and after 2026). The Table that refers to the Programmes only includes, in order to be in line with other transport modes, the further resources needed for the medium term (2026). The interventions, in line with was already defined in the previous DEF Annexes regarding Infrastructures, are divided between those focusing on railway lines hubs and those involving priority routes.

Finally, there is a focus on some interventions on railways of the South of Italy, which are part of the II Level SNIT, were funded through the PNRR and are essential to ensure the System's overall resilience, the network's efficiency and the accessibility to I Level SNIT network.

TABLE III.2.1 PRIORITY PROGRAMMES – TRANSPORT MODE: RAILWAY

ID	Name	Description	Intervention cost* (EUR million)	Available resources (EUR million)				Further resources EUR million. EUR) A-(B+C)
			A	B			C	
			PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	of which PNRR New resources	of which by the compl. Fund (EUR million)	FSC Resolution by CIPESS 15.2.2022	
1	Technological development to increase national network's capacity and improve its performances	Adaptation of the technologies for circulation through the creation of train control systems (SCMT), signalling and technologies for the interoperation of networks (ERTMS) and the update of telecommunication systems and GSM-R	15,457	9,282	2,710	0	0	6,175
2	Infrastructural development to increase regional network's capacity and improve its performances	Infrastructural and technological updates of regional networks	4,546	3,506	437	0	90	950
3	Safety and environment	Tunnel and rail tracks safety, railroad crossing elimination, noise abatement, hydrogeological and seismic interventions	9,282	5,916	0	0	0	3,366
4	Accessibility to stations	Accessibility improvement and compliance with legal obligations for terminals, station plans (platforms raisins and information systems upgrade), including the Plan for stations in the South and intermodal hubs provided for by the PNRR	6,406	2,939	700	0	0	3,467
5	Tourism-oriented minor railway lines enhancement	Enhancement of minor railway lines in function of landscape enjoyment and accessibility to the most interesting touristic sites	355	355	0	181	0	0
6	Enhancement of regional railway lines	Infrastructural and technological upgrade of hub	3,566	1,612	217	0	0	1.954

TABLE III.2.1 PRIORITY PROGRAMMES – TRANSPORT MODE: RAILWAY

ID	Name	Description	Intervention cost* (EUR million)	Available resources (EUR million)				Further resources EUR million. EUR) A-(B+C)
			A	B			C	
			PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	of which PNRR New resources	of which by the compl. Fund (EUR million)	FSC Resolution by CIPESS 15.2.2022	
7	Enhancement of regional railway lines (RFI)	Enhancement of regional railway lines Adaptation of regional railway lines to national network's technical standards, from an infrastructural, technical and safety point of view	936	936	936	0	0	0
8	Enhancement of regional railway lines (other companies)	Other regional railway lines which are not managed by RFI. Adaptation of regional railway lines to national network's technical standards, from an infrastructural, technical and safety point of view	1,921	1,550	0	1,550	0	371
9	Upgrading, electrification and resilience in the South	Enhancement and renewal interventions to improve performances in terms of availability, reliability and safety in the railways located in the South of Italy	6,216	4,524	2,400	0	113	1.578
TOTAL			**48.685**	**30.620**	**7,400**	**1,731**	**203**	**17,861**

*The Cost of Programmes refers to the period 2022-2026

TABLE III.2.2 PRIORITY INTERVENTIONS – TRANSPORT MODE: RAILWAY (HUBS)

ID	Name	Description	Intervention cost* (EUR million)	Available resources (EUR million)				Further resources needed (EUR million) A-(B+C)
			A	B			C	
			PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	of which PNRR New resources	of which by the compl. Fund (EUR million)	FSC Resolution by CIPESS 15.2.2022	
1	Turin	Infrastructural and technological upgrading, P.Nuova-P.Susa high-speed line, completion of SFM stops, Orbassano rail yard	776	431	50	0	0	345
2	Milan	Infrastructural and technological upgrading, and new terminal of Milan shunting	1,274	824	1	0	0	449
3	Genoa	Infrastructural upgrading and link to the airport	213	88	0	0	0	125
4	Venice	Infrastructural and technological upgrading,	996	611	2	0	0	385

TABLE III.2.2 PRIORITY INTERVENTIONS – TRANSPORT MODE: RAILWAY (HUBS)

ID	Name	Description	Intervention cost* (EUR million)	Available resources (EUR million)				Further resources needed (EUR million) A-(B+C)
			A	B			C	
			PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	of which PNRR New resources	of which by the compl. Fund (EUR million)	FSC Resolution by CIPESS 15.2.2022	
		refurbishment of crossroad lines and link to the airport						
5	Bologna	Infrastructural and technological upgrading of Bologna hub; Casalecchio di Reno railway/road hub	389	94	0	0	0	294
6	Florence	Upgrading of the Hub, High-Speed Hub and accessibility	2,050	1,927	49	0	0	123
7	Rome	Infrastructural and technological upgrading, completion of northern rail circuit, Pigneto hub; Tiburtina station hub; Castelli Romani lines enhancement; doubling of Campoleone-Aprilia-Nettuno, Lunghezza-Guidonia lines, planning for the doubling of Roma-Viterbo line	3,531	2,030	4	0	15	1.486
8	Naples	High-Speed Hub, infrastructural upgrading, Naples Est redevelopment – Traccia Project, Pompei's complex hub; Vesuvio Est stop	1,309	807	0	0	0	501
9	Bari	Upgrading, hub fixing and enhancement of Bari Sud, Bari Nord	1,426	580	0	0	608	238
10	Reggio Calabria	Infrastructural and technological upgrading	68	16	0	0	0	53
11	Palermo	Enhancement, infrastructural and technological upgrading,	1,419	1,206	0	0	0	213
12	Catania	Enhancement, infrastructural upgrading and link to the airport	153	17	0	0	0	136
TOTAL			**13.603**	**8.632**	**106**	**0**	**623**	**4,348**

TABLE III.2.3 PRIORITY INTERVENTIONS – TRANSPORT MODE: RAILWAY (ROUTES)

ID	Name	Description**	Intervention cost* (EUR million)	Available resources (EUR million)					Further resources needed (EUR million) A-(B+C)
			A	B			C	D	
			PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	of which PNRR New resources	of which Italian Decree-Law No. 59/21 converted by Law 101/21	Budget Law 2022 No. 234/21 paragraph 394	FSC Resolution by CIPESS 15.2.2022	
1	Turin-Lyon	**New line Turin-Lyon: basic tunnel (including EU funding) (within the competence of TELT)**	5,631	3,359	0	0	57	0	2,273
		New line Turin-Lyon: adaptation of Bussoleno-Avigliana historical line	200	81	0	0	0	0	119
		Turin Area and link to the Turin-Lyon link (priority works)	1,700	66	0	0	0	0	1,635
2	Liguria-Alps	Performance adaptation of TEN-T Reno-Alps, Links to Swiss crossing places: Gallarate-Rho enhancement, doubling of Vignale-Oleggio-Arona	2,825	1,542	0	0	0	0	1,283
		Speeding up of Turin/Milan/Genoa: quadruplication of Milan-Pavia, Milan-Tortona-Genoa, Turin-Alessandria-Genoa	1,321	586	0	0	0	0	736
		Hub of Genova and Terzo Valico dei Giovi	7,462	7,462	0	0	0	0	0
3	Genoa-Ventimiglia	**Completion of the Savona-Ventimiglia doubling**	1,951	51	0	0	0	0	1,900
4	Trasversale padana	**High-Speed/High-Capacity (AV/AC) Line Brescia-Verona west**	3,530	2,988	0	0	0	0	542
		AV/AC Line Verona east - Bivio Vicenza	3,140	3,140	1,421	0	0	0	0
		AV/AC Line Vicenza crossing	1,075	1,075	0	925	0	0	0
		AV/AC Line Vicenza-Padua	1,500	25	0	25	0	0	1,475

		Enhancement Venice-Trieste	1,800	278	0	0	0	0	1,522
		Infrastructural and technological upgrading of Trieste-Divaca, doubling of Udine-Cervignano	413	68	17	0	0	0	345
5	Verona-Brennero	**Point of passing: tunnel and lot 1 (Fortezza-P.te Gardena)**	5,713	4,984	0	0	0	0	729
		Trento and Rovereto ring road	1,555	937	930	0	0	0	618
6	Adriatico-Jonica	Infrastructural and technological upgrading	759	625	8	0	0	0	133
		Adaptation and speeding up of Bologna-Lecce line	351	351	0	0	0	0	0
		Doubling of Termoli-Lesina, Doubling of Pescara-Bari: 1st stage	1,019	1,014	3	0	0	0	5
		Adaptation of Adriatic Line with AV/AC features*	9,365	0	0	0	5,000	665	3,700
7	Trasversali appenninich e Central Italy	**Infrastructural enhancement and doubling of Orte-Falconara**	3,759	1,127	510	0	0	0	2,632
		Enhancement Rome-Pescara: 1st stage	1,322	1,142	620	0	0	100	80
8	Naples-Bari	**Doubling and speeding up of Cancello-Frasso-Telesino-Vitulano-Apice and Orsara-Bovino-Cervaro; new route Apice-Orsara; integration line Cancello-Naples with AV/AC**	5,807	5,807	0	0	0	0	0
		Infrastructural and technological upgrading of Naples-Bari-Lecce/Taranto	535	535	0	0	0	0	0
9	Salerno - Reggio Calabria	Infrastructural and technological upgrading of historical line	410	410	0	0	0	0	0
		High-Speed Salerno -Reggio Calabria (1st stage)	11,235	11,235	1,800	9,400	0	0	0
10	Trasversale meridionale	**Enhancement of Taranto-Metaponto-Potenza-Battipaglia with**	1,905	484	430	0	0	0	1,421

		high-speed features							
11	Palermo-Messina-Catania	**Doubling and speeding up of Messina-Catania-Siracusa**	2,564	2,515	0	0	0	0	49
		New link Palermo-Catania	6,017	5,609	317	0	0	408	0
12	Cagliari-Sassari/Olbia	Infrastructural and technological upgrading and speeding up	289	289	0	0	0	0	0
TOTAL			**85,152**	**57,782**	**6,057**	**10,350**	**5,057**	**1,173**	**21,198**

*Interventions currently not under PROGRAMME CONTRACT MIMS-RFI
**Works placed into receivership are indicated in bold

PRIORITY INTERVENTIONS FOR WHICH A PROJECT REVIEW SHALL BE CARRIED OUT – TRANSPORT MODE: RAILWAY (ROUTES)					
ID	**Name**	**Description**	**Intervention cost* (EUR million)**	**Available resources (EUR million)**	**Further resources needed (EUR million) A-(B+C)**
			PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	**PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021**	
5	Verona-Brennero	Railway feeder line*	1,849	33	1,816
11	Palermo-Messina-Catania	Doubling of Palermo-Messina**	939	939	0
TOTAL			**2,788**	**972**	**1,816**
* The interventions already confirmed as 'Priority interventions – Transport mode: railway (routes)' are not included. ** The amount of EUR 939 million. only includes the listed part of PROGRAMME CONTRACT-MIMS-RFI regarding the doubling of Fiumetorto-Castelbuono route.					

PRIORITY INTERVENTIONS FOR WHICH FEASIBILITY STUDIES SHALL BE CARRIED OUT - TRANSPORT MODE: RAILWAY (ROUTES)					
ID	**Name**	**Description***	**Intervention cost* (EUR million)**	**Available resources (EUR million)**	**Further resources needed (EUR million) A-(B+C)**
			PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	**PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021**	
7	Trasversali appenniniche Central Italy	Enhancement of Rome-Pescara: 2nd stage	5,230	0	5,230
9	Salerno-Reggio Calabria	High-Speed Salerno-Reggio Calabria (2nd stage)	12,865	117	12,748
TOTAL			**18,095**	**117**	**17,978**

ID	**Name**	**Description***	
13	Tirrenica Nord	Access to harbours on the Tyrrhenian Sea, adaptation freight on BO-FI historical route, continuing towards Pisa, enhancement of Pontremolese line, Pisa-Rome route, enhancement and speeding up of Pisa-Rome	Ensure proper accessibility to freight (in the 1st stage unit at least at 650m and stow position at least P/C 45) for the harbours of La Spezia, Marina di Carrara, Livorno, Civitavecchia, Naples and Salerno, as well as inland terminals and production districts of Lazio and Campania regions. Speeding up passengers relations Genoa-Rome (AVR line). **In particular, for the line Pontremolese on the PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021 the following funding is already available: enhancement of the railway axis Pontremolese EUR 586 million; Completion of the doubling of the railway axis Pontremolese – 1st stage EUR 260 million; Planning for the completion of the doubling of the railway axis Pontremolese - 2nd step EUR 7 million.**
* Works placed into receivership are indicated in bold.			

FOCUS

PNRR Interventions – Transport mode: Railway (Upgrading, electrification and resilience in the South)

Name	Description	Intervention cost* (EUR million)	Available resources (EUR million)				Further resources needed (EUR million) A-(B+C)
		A	B			C	
		PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021	of which PNRR New resources	of which by the compl. Fund (EUR million)	FSC Resolution by CIPESS 15.2.2022	
Regional railway lines	Plan for resilience in the South	231	231	231	0	0	0
	(Rome) Venafro - Campobasso - Termoli	150	150	150	0	0	0
	Palermo - Agrigento - Porto Empedocle	100	100	100	0	0	0
	Electrification of Barletta - Canosa	180	145	100	0	0	35
	Intermodality and accessibility of Trapani Birgi	40	40	40	0	0	0
	Doubling of Decimomannu-Villamassargia (1st stage)	230	130	130	0	0	100
	Railway link to the airport of Olbia*	183	170	170	0	13	0
	Bari Lamasinata	155	155	120	0	0	0
	Link to the harbour** and Augusta bypass	135	135	135	0	0	0
	Renovation of Potenza - Foggia railway line	335	323	110	0	0	12
	Enhancement of links to Brindisi: intermodal hub and airport	179	179	66	0	0	0
	Enhancement of links to Taranto: Harbour, Train station, Taranto-Brindisi	58	58	58	0	0	0
	Electrification and speeding up of Roccaravindola-Isernia-Campobasso	140	140	60	0	0	0
	Completion of the link Salerno Arechi-Airport Pontecagnano	235	160	60	0	0	75
	Doubling of Albairate-Abbiategrasso	123	123	120	0	0	0
	Doubling of Codogno-Cremona-Mantova 1st stage	515	515	165	0	0	0
	Doubling of Codogno-Cremona-Mantova 2nd stage	805	0	0	0	100	705
	Completion of Ferrrandina-Matera	365	365	50	0	0	0

	Ionica Sibari-Catanzaro Lido-Reggio Calabria / Lamezia Terme	918	918	300	0	0	0
	Catania's hub	998	347	95	0	0	651
	Pescara-Foggia-Brindisi	140	140	140	0	0	0
	TOTAL	**6,216**	**4,524**	**2,400**	**0**	**113**	**1,578**
* Update cost with respect to PROGRAMME CONTRACT MIMS-RFI Upd. 2020-2021							
** Interventions not under PROGRAMME CONTRACT MIMS-RFI							

FOCUS

Infrastructural and services improvement for the Strait of Messina crossing system

In 2020-2021, the MIMS has conducted several studies on how to improve the Strait of Messina crossing system, by identifying the main existing issues and planning resulting infrastructural and services improvement during the preparation of the Techno-Economic Feasibility Project for the assessment of alternatives for its stable crossing, which is being drawn up by RFI.

Specifically, **the plan for interventions aimed at improving the dynamic crossing of the Strait** to be implemented in the medium/short-term provides for:

- the redevelopment of the trains' transhipment vessel, which will be used together with the new Iginia ship that recently entered into service, as well as the fast passenger ferry, by means of ship hybridisation interventions aimed at increasing the quality of passenger and freight services and make them more sustainable in terms of environmental impacts;
- the renewal and retrofitting of rail rolling stock, also in order to speed up the embarkation/disembarkation of trains, and the elimination of diesel traction of towing vehicles;
- the redevelopment of train stations in order to have a higher-quality rail services, which better integrated with the Strait of Messina crossing services;
- the enhancement and redevelopment of docks and marine stations, also in order to increase the capacity and flexibility of maritime services, as well as the quality of the journey for users both with and without their own vehicles;
- the promotion of the energy transition of maritime mobility in the ports of the Strait's Harbour's Authority (AdSP), for example through the construction of coastal depots for LNG, electrification of piers, LNG and Bio-LNG micro-liquefaction systems;
- the increase of road accessibility to harbour in order to improve vehicles' access/exit capacity.

An overall investment of about EUR 500 million for the implementation of these projects through the PNRR funds (Next Gen. EU and PNC), 2021 Investment Fund and Programme Contracts with ANAS and RFI has been defined.

With regards to the alternative solutions for the stable crossing of the Strait of Messina, according to the work group, which was established by the STM on 27 August 2020 by means of the Resolution No. 2620, there are reasons to implement the stable crossing of the Strait of Messina, even though the enhancement/redevelopment of maritime links (i.e., dynamic link), which is deemed necessary considering the time needed to implement a stable link, has been provided for. The elements that have emerged during the work carried out suggested that the formal assessment of the usefulness of the link system should be defined at the end of a decision-making process that initially includes the drafting of a techno-economic feasibility project.

Moreover, the work group pointed out that the single-aisle bridge project cannot be implemented if changes in the design and/or technical, legal, economic and environmental investigations are not carried out first. Another particularly important aspect appears to be how to choose the funding model for the project, considering that it would be advisable to

directly place the financial burden on public funds – or European ones, if applicable –, since there are no grounds for requesting users to pay tolls for the infrastructures.

The MIMS requested RFI to provide for the drawing up of a techno-economic feasibility project, by means of a public procurement procedure and by drawing from the funds provided for this purpose by the Italian Budget Law No. 178/2020 (i.e., EUR 50 million), aimed at identifying alternative solutions for the stable crossing of the Strait of Messina, specifically including the analyses of:

a) the national and European regulatory framework of reference on the planning, scheduling and design of public works (e.g., public tenders, national and European Programming; tunnels, bridges and viaducts design; public debate)

b) international experiences and good practices;

c) current and long-term socio-economic context for the area of interest;

d) available documents, studies, investigations and projects for the area of interest;

e) current situation and transport-related problems for the crossing of the Strait of Messina (current and reference scenario);

f) revealed and declared preferences of future short- and long-distance users concerning the modes of crossing (static and dynamic) and their willingness to pay for the different components of potential transport demand;

g) increase (either on a long-term basis or not) in the demand for multimodal passenger and freight mobility in different economic growth scenarios in Italy and the regions of Southern Italy, as well as the Euro-Mediterranean area;

h) project proposals developed over time;

i) di Messina e Reggio Calabria; the most technically feasible projects (upon prior investigation and necessary evaluations) for the two kinds of bridges (single and multiple aisle) for the crossing of the Strait of Messina and relevant connections with long-distance land connections (e.g., motorways and railways), as well as the two metropolitan cities;

j) the types of traffic which would make use of the stable link and approximate size of the chosen kind of solution;

k) performance indicator to compare projects in the most significant scenarios, including resilience and seismic risk;

l) response of the deck to turbulent wind, through aerodynamic and aeroelastic studies;

m) doubts and risks regarding the building and management times and costs;

n) feasibility and constant fitness for use of the link, its location's flexibility, the total size of both the open-air and tunnel works;

o) environmental and safety impacts, both in the building stage and when it is used, transport-related impacts (savings in terms of time and costs) for passengers and freight as well as transport modes, social impacts (e.g., welfare, fairness) and any other relevant impact (e.g., geotechnical, water-related ones);

p) impacts on the economic development of the regions involved and of the Country;

q) design and implementation times, opening, service life;

r) the work's implementation and management costs, as well as the possible covering;

s) different options for the overall management of the crossing system, the tolling structure and traffic revenue forecasts;

t) cost-benefit and multi-criteria analysis for the comparison of alternative solutions according to the Guidelines for the evaluation of investments in public works (Ministerial Decree No. 300 of 13 June 2007).

III.3 ROADS AND MOTORWAYS

The national road networks is an essential component of the integrated system of infrastructures meeting the demand for both national and international people and freight mobility. Even though national road infrastructures are pretty significant, there is the need and room for improvement in terms of:

- enhancement of existing road infrastructures and completion of projects being carried out on similar road routes;
- technological enhancement and digitalisation (e.g., Smart Road), which is essential to improve road safety, enhance performances and can lead to a more sustainable use of the infrastructure itself;
- infrastructures maintenance and implementation of safety measures, particularly in the areas and routes linking inland areas as well as the ones at higher seismic and hydrogeological risk;
- traffic decongestion in suburban areas and on motorways;
- traffic decongestion in urban and metropolitan areas; adaptation and homogenisation of low motorway accessibility routes.

Based on these thoughts and considering the I Level SNIT's features and issues, specific interventions aimed at solving problems concerning individual routes or itineraries, as well as systematic thematic plans aimed at solving widespread issues concerning significant parts of the road network, have been identified.

As a matter of fact, it is necessary to stress that, at the time being, the primary and secondary road networks are the only link - for both passengers and freight – from/to many inland and mountain areas of the Country to urban centres. Therefore, increasing the capacity and resilience of this network is essential also in order to fight the depopulation of inland areas, thus safeguarding mountain areas, as well as the Apennines and the Alps, whose hills and valleys are the result of an existing balance between natural environment and human interventions. As a result, the following intervention Programmes have been identified and they are aimed at:

- the preservation, enhancement and adaptation to functional and safety standards;
- technological enhancement and digitalisation (Smart Road);
- implementation of safety measures for and maintenance of infrastructures at high seismic risk, starting from the areas where the epicentres of 2009 and 2016 earthquakes were;
- traffic decongestion on motorways;
- traffic decongestion in metropolitan areas;
- territory resilience and link from/to inland and mountain areas.

In choosing Priority Interventions, many aspects were taken into account: that is, apart from interventions being in line with the strategic objectives indicated in Chapter I, there was the need to also complete those interventions which have been partially carried out and are necessary to complete some essential links of the primary road network as well as the synergic effects resulting from them.

The resourced funded by the 2022 Budget Law for the network managed by ANAS S.p.a. are not taken into account in the tables, since the new Programme Contract they will be used for (i.e., a total of additional EUR 4.5 billion) has not yet been made official. Moreover, as stated above, the increases due to the extraordinary increase in the prices of some of the most significant building materials have not been taken into account.

On the other hand, the substantial funds allocated by 2022 Italian Budget Law to increase the resilience of the **secondary road network managed by Regions, Provinces and Metropolitan Cities** were included in priority Programmes: the decrees concerning the period 2022-2029, which have been recently adopted, allocate over **4.6 billion Euros**, and are oriented towards the management of resources for interventions aimed at non-routine on-site maintenance and the implementation of safety measures for bridges and viaducts, based on their state of preservation and daily performance demands. Moreover, in compliance with the EU's DNSH principle, interventions aimed at creating alternative routes are allowed, as long as the analysis of safety principles and standards of use, together with the assessment of the potential impacts they could have on territories and the environment, ensure their effectiveness.

This approach is strengthened by the possibility, for implementing bodies, to act on the whole network, by using such funds – upon prior agreement - for routes administered by Municipalities.

As for EU's and complementary funds, two important tools for the planning and distribution of resources on the abovementioned priority Programmes are being used.

First of all, the fund of the National Plan complementary to the National Recovery and Resilience Plan, **funded, with about EUR 2 billion Euros, the adaptation – also from a technological point of view – of the motorway system made up by A24 and A25 motorways, the technological monitoring of I Level SNIT's bridges and viaducts network, the increase in the resilience of links with inland areas**, and, in particular, with the epicentres of 2009 and 2016 earthquakes (i.e., one of the projects was developed together with the Italian Ministry for Southern Italy and Territorial Cohesion, while the other one was developed with the Presidency of the Council of Ministers, extraordinary Administrator for the areas affected by the earthquake of 2016) and last-mile road connections with certain areas in Special Economic Zones (SEZs).

Moreover, over 3 billion Euros for the main and complementary road network, were allocated as an advance payment for the Development and Cohesion fund, 2021-2027 planning period, by means of the CIPESS Resolution No.1 of 15 February 2022. Such resources were allocated as follows:

- EUR 1,504 million for the road network managed by ANAS S.p.a.;
- EUR 1,125 million for the road network directly managed by, or in cooperation with, Regions;

- EUR 467 million for the secondary road network managed by Local Authorities.

In view of the above, among the priority Programmes and interventions, the following ones shall be mentions:

- the adaptation of the part of SS 106 Jonica located in the Region Calabria, which needs major investments both for alternative routes and for interventions throughout the whole route;
- the functional adaptation of road to/from and linking the areas affected by the earthquakes of 2009 and 2016, starting from SS4 Salaria;
- the full funding for the resources needed to complete the national E78 route, with a particular focus on inland areas.

Considering that the PNRR funds could not envisage significant investments for the road network, it is deemed appropriate that, in the FSC 2021-2027 general planning, the increase of road network resilience is considered a priority.

TABLE III.3.1: PRIORITY PROGRAMMES LIST

No.	Name	Description	Feasibility project	Existence of planning tools	Intervention cost (EUR million)	Available resources (EUR million)	Further resources needed (EUR million)
1	Enhancement of existing road infrastructures	Existing road infrastructures preservation, enhancement and adaptation to functional and safety standards		Programme Contract ANAS PO MIT	11850.20	8496.26	3353.94
		National road network reclassification. Non-routing maintenance for safety reasons.			1179.90	1179.90	0.00
2	Technological enhancement and digitalisation (Smart Road)	A2 'Autostrada Mediterranea' Pilot Project			198.00	198.00	0.00
		Adaptation of I Level SNIT road network to Smart Road's functional specifications, as specified in the Annex to the Ministerial Decree 70			637.00	40.00	597.00
		Ecosystem for C-ITS services		Ministerial Decree No. 70/2018 (Smart Road)	2.00	-	2.00
3	Implementation of safety measures for and maintenance of infrastructures, with particular focus on the ones at high seismic risk	Technological monitoring of A24 and A25 motorways, seismic upgrading of viaducts, tunnel upgrading as well as intervention for the upgrading of infrastructures, and smart road (S.A. Extraordinary Administrator)		Concession-holder: Strada dei Parchi S.p.A.	3990.90	3990.90	0.00
		Bridges, viaducts and tunnels maintenance		Programme Contract ANAS	4234.79	4234.79	0.00
		Programme for the technological monitoring of works used for the I Level SNIT network		ANAS and concession-holder companies	450.00	450.00	0.00
		Planned interventions on the road network in the areas affected by the earthquakes of 2009 and 2016		Programme Contract ANAS	872.94	872.94	0.00
		Further interventions in the areas affected by the earthquakes of 2009 and 2016 planned by means of the Italian Decree No. 1 of 16 December 2021 of the Extraordinary Administrator for 2016 earthquake, shared with the MIMS			1172.00	203.42	968.58
		Via Salaria (SS4) enhancement and redevelopment			1131.92	489.68	642.24
		Via Salaria (SS4) upgrading to 4 lanes, 1st stage (Km 56 - 71)	x				
		Via Salaria (SS4) upgrading to 4 lanes, 2nd stage (km 36 - 56)	x				
4	Traffic decongestion on motorways (creation of third and fourth lane)	Widening of the fourth lane of A1 motorway's route South Milan – Lodi		Concession-holder: Autostrade per l'Italia S.p.A.	207.09	207.09	0.00
		Widening of the third lane of A13 motorway's route Monselice –South Padova			184.62	184.62	0.00
		Widening of the third lane of A13 motorway's route Bologna – South Ferrara			440.39	440.39	0.00
		Widening of the fourth lane of A14 motorway's route Ponte Rizzoli's new junction – Branch to Ravenna			392.56	392.56	0.00
		Realisation of the third dynamic lane on A12 motorway's route– Torrimpietra, Southern carriageway			32.00	32.00	0.00
		New link coast-inland areas in Valfontanabuona (GE)	X	TBD			

TABLE III.3.1: PRIORITY PROGRAMMES LIST							
No.	Name	Description	Feasibility project	Existence of planning tools	Intervention cost (EUR million)	Available resources (EUR million)	Further resources needed (EUR million)
5	Traffic decongestion metropolitan areas	Catania's orbital road: realisation of the third lane and safety barriers upgrading		Programme Contract ANAS	361.40	4.00	357.40
		Capua's alternative route: link between A1 motorway, Grazzanise airport and Domiziana route		Programme Contract ANAS	315.00	315.00	0,00
		G.R.A. and A91 Rome-Fiumicino: realisation of GRA's slip roads between Via Casilina and Tor Bella Monaca's junction, and upgrading of Tiburtina's junction		Programme Contract ANAS	210.79	79.12	131.67
		Bari's orbital road: upgrading of the alternative route between Bari and Mola di Bari with the adoption of B road section		Programme Contract ANAS	600.00	30.00	570.00
		Completion of the upgrading of Florence's hub (A1 and A11 motorways)		Concession-holder: Autostrade per l'Italia S.p.A.	1383.38	1383.38	0,00
		On-site upgrading of Bologna's motorway system and orbital road		Concession-holder: Autostrade per l'Italia S.p.A.	1602.00	594.75	1007.25
		Genoa's bypass (so-called 'Ponente'): new route for the upgrading of A7-A10-A12 junction		Concession-holder: Autostrade per l'Italia S.p.A.	4755.20	4755.20	0.00
6	Secondary road network resilience and accessibility to inland areas	Resilience for inland areas identified by the SNAI strategy		Provinces, Metropolitan cities, Committees for inland areas	350.00	350,00	0.00
		Non-routine maintenance of secondary road network's bridges and viaducts		Provinces and Metropolitan cities	3200.00	2700,00	500.00
		Secondary road network's resilience for inland and mountain areas		Regions, Provinces and Metropolitan cities	13000.00	9174,16	3825.84
TOTAL					**52754.08**	**40798.16**	**11955.92**

TABLE III.3.2: PRIORITY INTERVENTIONS

No.	Name	Description	Project Review	Feasibility project	Existence of planning tools	Intervention cost (EUR million)	Available resources (EUR million)	Further resources needed (EUR million)
1	A22 Brennero's motorway	Upgrading of the A22 motorway between North Verona and the junction with Modena's A1 motorway			Renewed concession: Autostrade del Brennero SpA	995.00	-	995.00
		New link Campogalliano – Sassuolo between A22 motorway and S.S. 467			Concession-holder: Campogalliano Sassuolo SpA	422.00	422.00	0.00
2	A31 Val d'Astico motorway *The feasibility of the whole route is subject to the solutions identified by means of the second route's project review*	Piovene Rocchette – Valle dell'Astico, continuing at the north of A31 motorway			Concession-holder: Autostrada Brescia-Verona-Vicenza-Padova SpA	1299.43	1299.43	0.00
		Junction with the territories of Val d'Astico, Valsugana and Valle dell'Adige	x					
3	A4 motorway Venice - Gorizia - Trieste 25 Works	Upgrading of A4 motorway through the widening of the third lane in the routes between San Donà di Piave and Alvisopoli, as well as Gonars and Villesse			Concession-holder: A4	647.23	647.23	0.00
4	Pedemontana Veneta	Pedemontana Veneta regional toll freeway			Concession-holder: Region	2258.00	2258.00	0.00
5	Pedemontana Lombarda motorway	Pedemontana Lombarda regional motorway			Concession-holder: Region	2681.90	2681.90	0.00
6	Autostrada A33 Asti Cuneo	Completion of the A33 motorway Asti – Cuneo			Concession-holder: Asti Cuneo SpA	348.00	348.00	0.00
7	Medio Padano motorways itinerary	Parma – Terre Verdiane (TiBre 1st lot) motorway's exit/entrance ramp			Concession-holder: SALT Tronco Autocisa SpA	423.86	423.86	0.00
		New link Terre Verdiane – former SP10		X	Renewed concession: SALT Tronco Autocisa SpA			-
		Neg regional Cispadana and			Concession-holder: Region	1308.00	1308.00	0.00

TABLE III.3.2: PRIORITY INTERVENTIONS								
No.	Name	Description	Project Review	Feasibility project	Existence of planning tools	Intervention cost (EUR million)	Available resources (EUR million)	Further resources needed (EUR million)
		refurbishment former SP10						
8	Civitavecchia-Orte-Ravenna itinerary	Completion of SS 675 Orte-Civitavecchia – New Route East Monte Romano - Civitavecchia			Programme Contract ANAS	513.86	513.86	0.00
		Redevelopment of E45/SS 3 bis Orte-Ravenna		X		1153.31	1153.31	0.00
		Perugia's hub		X		461.00	10.50	450.50
		Redevelopment of SS 309 Ravenna-Venice		X		436.91	436.91	0.00
9	E78 – Crossing Toscana-Umbria-Marche itinerary	Selci Lama (E45) - S. Stefano di Gaifa Upgrading to 2 lanes of Guinza's tunnel (2nd lot) and of the route Guinza - Mercatello Ovest (3rd lot)				90.00	86.00	4.00
		Selci Lama (E45) – S.Stefano di Gaifa. Urbania's alternative route upgrading to 2 lanes				130.00	8.00	122.00
		Selci Lama (E45) - S. Stefano di Gaifa West Mercatello sul Metauro – East Mercatello sul Metauro (4th lot) upgrading to 2 lanes				100.00	3.80	96.20
		Selci lama (E45) – S.Stefano di Gaifa. Mercatello sul Metauro East - S Stefano di Gaifa (5th-10th lots) route upgrading to 2 lanes - Completion				260.00	-	260.00
		Grosseto - Siena: 4th lot. Upgrading to 4 lanes from km 27+200 to km 30+040				105.52	105.52	0.00
		Grosseto - Siena: 9th lot.				195.78	195.78	0.00

TABLE III.3.2: PRIORITY INTERVENTIONS								
No.	Name	Description	Project Review	Feasibility project	Existence of planning tools	Intervention cost (EUR million)	Available resources (EUR million)	Further resources needed (EUR million)
		Upgrading to 4 lanes from km 41+600 to km 53+400						
		Siena – Bettolle (A1). Upgrading to 4 lanes of the route Siena - Ruffolo (Lot 0)				247.00	37.34	209.66
		S.G.C. Grosseto – Fano Route Grosseto – Siena. Interventions aimed at enhancing Casal di Pari Tunnel (existing).				35.14	35.14	0.00
		Arezzo (S.Zeno)-Selci lama (E45). Upgrading to 4 lanes of the route San Zeno – Arezzo - Palazzo del Pero – 1st lot.				218.00	-	218.00

TABLE III.3.2: PRIORITY INTERVENTIONS								
No.	Name	Description	Project Review	Feasibility project	Existence of planning tools	Intervention cost (EUR million)	Available resources (EUR million)	Further resources needed (EUR million)
9	E78 Itinerary – Crossing Toscana-Umbria-Marche	Arezzo (S.Zeno)-Selci lama (E45). Upgrading to 4 lanes of the route San Zeno – Arezzo - Palazzo del Pero - Completion			Programme Contract ANAS	209.01	-	209.01
		Selci Lama (E45) - S. Stefano di Gaifa Upgrading to 2 lanes of the route Selci Lama (E45) - Parnacciano (Guinza) 1st lot				100.00	6.71	93.29
		Arezzo's hub (S.Zeno)-Selci lama (E45). Upgrading to 4 lanes of the route Le Ville - Selci Lama (E45) 7th lot				435.00	5.00	430.00
10	North-Central Tyrrhenian itinerary	Itinerary Livorno-Civitavecchia completion	X		Transfer to ANAS underway			-
11	Quadrilatero Umbria-Marche	Integrative works to complete the itinerary			Programme Contract ANAS	299.38	283.91	15.48

TABLE III.3.2: PRIORITY INTERVENTIONS								
No.	Name	Description	Project Review	Feasibility project	Existence of planning tools	Intervention cost (EUR million)	Available resources (EUR million)	Further resources needed (EUR million)
12	South-Central Tyrrhenian itinerary (RM-NA)	Tor de Cenci - Latina			Motorway concession to be activated	1 371.30	718.10	653.20
		Bretella Cisterna - Valmontone	X		Astral S.p.A.	649.53	300.00	349.53
		Complementary works for Tor de Cenci - Latina		X	Astral S.p.A.	155.70	155.70	0.00
		Alternative route in Formia Municipality SS 7 (Pedemontana)			Programme Contract ANAS	401.76	79.25	322.51
		Enhancement SS 7 quater Domitiana		X				-
13	SS.N.372 Telesina Benevento-Caianello	Upgrading to 4 lanes from km 0+000 to km 60+900 – 1st lot from km 37+000 (San Salvatore Telesino's junction) to km 60+900 (Beneventos junction)			Programme Contract ANAS	460.00	460.00	0.00
		Upgrading to 4 lanes from km 0+000 to km 60+900 – 2nd lot from km 0+000 (A1 Caianello) to km 37+000 (San Salvatore Telesino's junction)				562.31	-	562.31

TABLE III.3.2: PRIORITY INTERVENTIONS								
No.	Name	Description	Project Review	Feasibility project	Existence of planning tools	Intervention cost (EUR million)	Available resources (EUR million)	Further resources needed (EUR million)
14	Salerno-Potenza-Matera-Bari itinerary	Redevelopment of RA5 5 and SS 407 Basentana – 2nd section and completion			Programme Contract ANAS	423.06	416.05	7.01
		SS 658Melfi - Potenza – Implementation of safety measures in the road and industrial plant connection				110.59	73.59	37.00
						29.65	29.65	0.00
						77.96	4.97	72.99
		Upgrading of SS 96Matera-Bari links				33.22	33.22	0.00
		Upgrading of exiting seats and newly developed routes Salerno-Potenza-Bari – 4th Section: from Vaglio's industrial area toSP Oppido's junction - SS 96				418.80	2.50	416.30

TABLE III.3.2: PRIORITY INTERVENTIONS								
No.	**Name**	**Description**	**Project Review**	**Feasibility project**	**Existence of planning tools**	**Intervention cost (EUR million)**	**Available resources (EUR million)**	**Further resources needed (EUR million)**
15	A2 'Autostrada Mediterranea' SA-RC	Enhancement of the feeder road network (A2 Salerno-Reggio Calabria) – North Cosenza's junction (place: Settimo di Rende) and South Cosenza				1719.88	878.25	841.63
16	106 Jonica Trunk Road	Completion of the 3rd big lot of the S.S. 106 Jonica, from the connection point with S.S. 534a Roseto Capo Spulico				1335.12	1335.12	0.00
		Catanzaro – Crotone Section				1500.00	220.00	1280.00
		Crotone – Sibari Section		X				
		Completion of the itinerary until Reggio Calabria		X				
17	Sardinian itinerary	SS.N.131 Carlo Felicee Nuoro's central branch – Upgrading, implementation of safety measures and critical hubs' issues settlement through the completion of Sassari-Olbia itinerary				703.95	235.18	468.77
18	A19 Palermo-Catania	Redevelopment and maintenance of A19 Palermo-Catania				792.14	792.14	0.00
19	Agrigento-Caltanissetta SS640	Enhancement of the SS 640 Agrigento-Caltanissetta link				1535.05	1535.05	0.00

TABLE III.3.2: PRIORITY INTERVENTIONS								
No.	**Name**	**Description**	**Project Review**	**Feasibility project**	**Existence of planning tools**	**Intervention cost (EUR million)**	**Available resources (EUR million)**	**Further resources needed (EUR million)**
20	Ragusa – Catania	Ragusa – Catania Section			Programme Contract ANAS	1237.57	1237.57	0.00
		Siracusa - Gela itinerary – 9th lot			Concession-holder: Region	350.00	350.00	0.00
21	16 Trunk Road	SS16 Adriatica Falconara Baraccola – 1st lot Falconara- Torrette			Programme Contract ANAS	349.38	349.38	0.00

TABLE III.3.2: PRIORITY INTERVENTIONS								
No.	Name	Description	Project Review	Feasibility project	Existence of planning tools	Intervention cost (EUR million)	Available resources (EUR million)	Further resources needed (EUR million)
		– way to Ancona's harbour section						
22	34 Trunk Road	Implementation of safety measures on SS 34 Section on Lago Maggiore's lakeside				34.00	34.00	0.00
23	A2 Motorway 'Autostrada Mediterranea'	Providing the Section Salerno/Avellino with typical motorway features, including the upgrading of S.S.7 and 7Bis East Avellino's junction of A16. 2nd section intersection A30 – Road to Avellino at the junction with Solofra				370.00	130.00	240.00
		Link between A2 e SS18 Alternative route in Agropoli				370.00	370.00	0.00
24	A16 - A3 link	Realisation of a fast link between A3 motorway 'SA-RC (Contursi's junction)' and A16 motorway (Grottaminarda's junction) - Completiono: 2nd link Sant'Angelo dei Lombardi - Villamaina				430.00	360.00	70.00
TOTAL						**30794.32**	**22369.92**	**8424.40**

FOCUS

SS106 Jonica

The 106 Jonica trunk road starts in Reggio Calabria, goes along the Ionian coast and ends in Taranto, after a 491km-long route. This road links Calabria, Basilicata and Apulia, ad it is a strategic link for Southern Italy. From a functional point of view, this infrastructure is essential to reach inland areas that cannot be accessed easily and it is the preferential itinerary to link the whole Ionian coast. The road sections located in Apulia and Basilicata region (i.e., respectively, 39km and 37km) were extended through the adoption of the section B. Now, it is particularly important to **implement the plan for the overall development of the road section located in Calabria region**, from the Northern border of the region to Reggio Calabria, through the planning and implementation of safety measures and upgrading interventions for an estimated amount of over EUR 3 billion in addition to the resources already allocated for underway interventions.

Sibari – Roseto CAPO SPULICO Section

On 19 May 2020, the works for the upgrading of the section, for an amount of EUR 1.335 billion were commissioned. The completion of works is scheduled for August 2026. The intervention provides for the realisation of a further alternative route for the new S.S. 16, for the overall development of about 38km, with a B category road section. From an orographic point of view, the first part of the S.S. 16 (from km 0+000 to km 18+863) crosses a regular territory in Sibari's plain. Instead, more works shall be carried out in the following section (from km 18+863 to about km 38+000), due to the territory's morphology. The realisation of the infrastructure meets the demand for transport between the Tyrrhenian coast and the Ionian/Adriatic coast, which are currently done through A2–S.S. 534, as well as the S.S. 106. Moreover, the new infrastructure results in an increase in the number of users due to the increase of tourism-related traffic in the Northern part of the Ionian coast, and it has a considerable impact on current traffic in coastal centres.

Catanzaro – Crotone Section

The alternative route is a faster, more reliable and safer link between the two Calabrian provinces thanks to which access to the transport accessibility of inland urban centres can increase. This route, whose estimated value is EUR 1.5 billion, was shared with the local authorities through a project review 1/2021 prepared by the MIMS technical mission structure. With the CIPESS resolution No. 1 of 15 February 2022, EUR 220 million were drawn from the Development and Cohesion Fund for the realisation of the first functional section, which will be tendered out within 18 months from the publication of the resolution.

General plan for upgrading interventions and the implementation of safety measures

The commissioner's members are drawing up a **general plan for upgrading interventions and the implementation of safety measures in this arterial road**, to be carried out as a priority and according to a shared schedule, which provides for the increase in the resilience and performances of the entire Calabrian section.

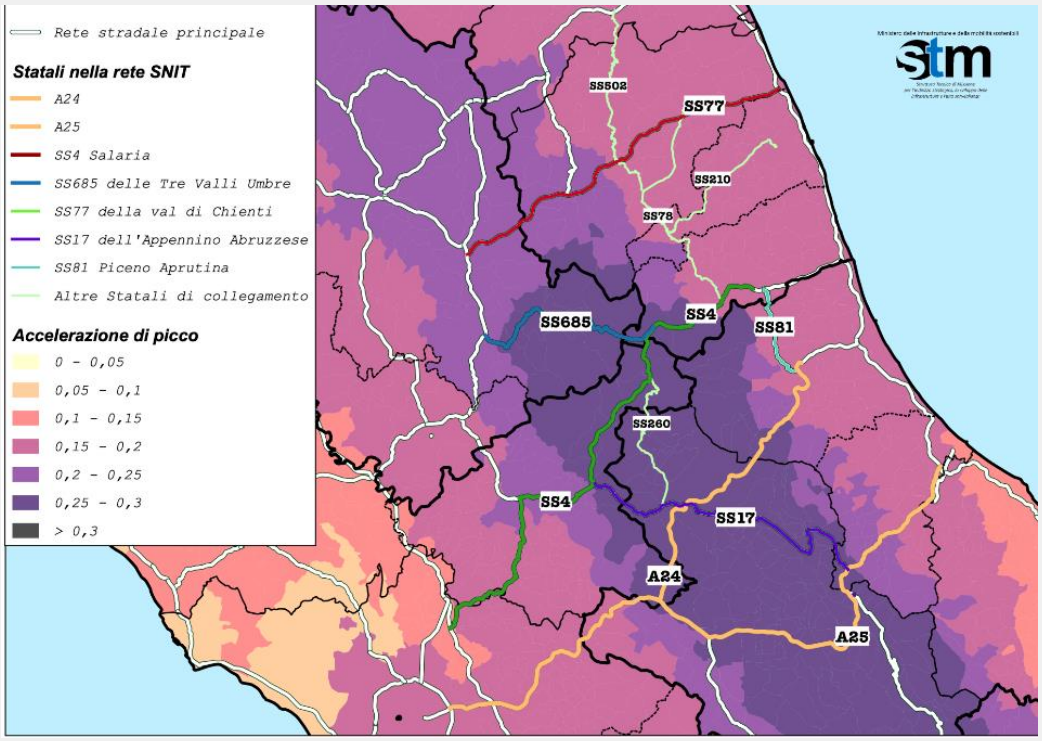
As a matter of fact, in addition to the safety measures already contracted, a series of works are planned in order to reduce accidents on the arterial road in the short term, through local adjustments to the route or on-grade intersections, as well as safety barriers and road pavements scheduled maintenance.

At the same time, a second stage is being developed. It will focus on the planning of interventions aimed at making priority routes more functional, by combining transport-related criteria with the strategic role of this infrastructure for the safety and increased competitiveness of the entire Ionian area. The Techno-Economic Feasibility Project for the first stage of Sibari-Crotone section, in the perspective of a type B of road, which shall be shown to the territories in order to estimate the funds needed, will be carried out in the first six months of the current year. The project's analysis for the section arriving in Reggio Calabria is expected to be completed by the end of this year.

FOCUS

The Complementary National Plan for road interventions in areas affected by the earthquakes of 2009 and 2016

The project, which is part of the planned interventions partly funded by the Complementary National Plan, concerns all the areas of Central Italy which have been affected by several earthquakes in the last 15 years, and it provides for investments on trunk roads to access to the epicentres of 2009 and 2016 earthquakes, which were identified together with the earthquake control room and subject to the decree by the Extraordinary Administrator No. 1 of 16 December 2021.



It can be seen that the A24-A25 motorway system, the Salaria and 685 and 77 trunk roads are the main access routes to the earthquake areas, while the remaining ones indicated act as the first link between these and the remaining inland areas. Starting from the study carried out by ANAS in 2017, **EUR 37 million** has been allocated from the PNC earthquake fund for the design of priority sections for the development of territories, and **EUR 140 million** for the implementation of the first essential road safety interventions; the MIMS has acknowledged the importance of these arterial roads, and has undertaken to find the necessary funds, considering the resources available.

Among the interventions funded by means of the abovementioned decree, the interventions on the following arterial roads are particularly interesting:

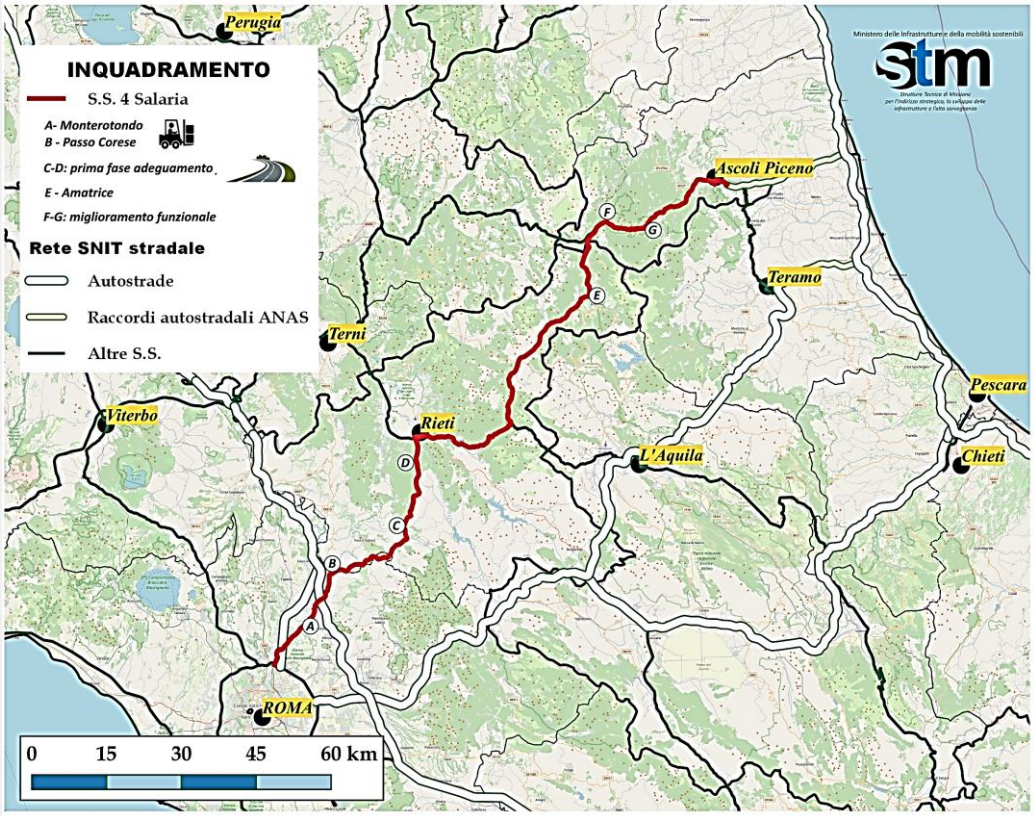
- **SS 685 of the three Umbrian valleys**: EUR 20 million for the first amendment interventions and the implementation of safety measures on the route, also with the creation of a 10km-long 3rd climbing lane, and EUR 7 million for the planning of the Firenzuola–Acquasparta link, completing the itinerary linked to S3, Flaminia, with an estimated cost of over EUR 300 million;
- **SS 81 Piceno Aprutina**: EUR 6 million for the planning of the resilient link between Teramo and Ascoli Piceno, with an estimated cost of over EUR 6 million for interventions;
- **SS 4 Salaria**: EUR 6 million for the on-site upgrading of the Rieti-Sigillo section, in order to complete the Extraordinary Administrator's interventions.

Via Salaria

S.S. 4 (i.e., trunk road) is the main road for the accessibility and mobility of the areas of Central Italy which have been affected by the earthquake of 2016. It starts from Rome's GRA, and then crosses A1 motorway, linking Rieti (via Monterotondo and Passo Corese, i.e., very important centres in terms of industrial development and logistics) to the Central Apennine (Amatrice and Accumuli), as well as the Tronto river valley (Arquata and Pescara del Tronto) up until Ascoli Piceno, where – by means of the Raccordo 11 – it joins A14.

In addition to this function, that it shares with the A24-A25 motorway system and the E78, the SS4 is a core interregional connection road of the inland areas of the Apennines. It connects Lazio to Marche region, but it is also useful to link them to the territories of the provinces of:

- Perugia, via the S.S. 685 'Tre Valli Umbre' junction (Norcia, Cascia, Preci);
- L'Aquila, via the S.S. 260 and SS17 junction, which also links it to A24;
- Teramo, via S.S. 81 'Piceno Aprutina' junction.



Because of this centrality in the Apennine mobility system, significant functional upgrading and enhancement works are planned on the Salaria, based on an overall Programme to be implemented by the end of this year. Finally, the arterial road was identified as a priority work under the Italian Decree-Law 32/2019 and was placed into receivership.

The priority interventions to be funded, in addition to several other works to be carried out on the entire route, in order to increase resilience, such as the upgrading of works and the realisation of roundabouts to increase the safety of intersections with secondary roads, are as follows:

- Alternative route to Monterotondo Scalo – 2nd stage;
- upgrading to 2 lanes in each direction of the motorway section linking Fiano Romano–Passo Corese to Rieti, with a first stage between km 56 (Casaprota junction) and km 71 (Colle Giardino tunnels);

- functional improvement and implementation of safety measures in the Trisungo–Acquasanta section.

III.4 PORTS

In line with the previous Infrastructure Annex to the Economic and Financial Document (*Documento di Economia e Finanza*, DEF), urgent port interventions and Programmes have been identified by taking due account of the general needs and priorities of the transport system as well as the more specific ones of maritime transport as described in the previous chapters, thus breaking down the related interventions and Programmes into

- **measures entailing legally binding obligations (**LBOs), i.e., measures with a total value of more than EUR 10 million (with the exception of a few special cases), being implemented as of 31 December 2021 or provided for in binding agreements, although not yet implemented (e.g., bound by Programme Agreements), and measures not yet implemented, although already contracted or being contracted (measures concerning energy and environmental efficiency and digitisation Programme have no particular constraints, as their extension is typically limited);
- **projects subjected or to be subjected to feasibility project**, depending on the strategies and priority defined in this document and the allocation of the funding for the feasibility project of infrastructures and priority interventions for the development of the country - resources for the three-year period 2021-2023 and two-year period 2019-2020.

  These measures have been summarised according to the 10 port intervention Programmes already defined in the previous Infrastructure Annex to the Economic and Financial Document:

- **maintenance of the state-owned public** property: the Programme includes work on quays, service areas, docks and internal port roads to ensure the proper maintenance of the state-owned public property in the port area and compliance with occupational health and safety regulations, as well as to promote the removal of architectural barriers;
- **Digitisation of logistics and ICT**: the Programme for the digitisation of logistics and the promotion of telematic applications in Italian ports includes actions already undertaken in recent years, such as the preclearing and implementation of fast corridors, the development of Port Management Information Systems or the development of the 'European Maritime Single Window environment' and integration into the national logistics platform. This Programme also includes measures for improving digital systems in ports (from accesses to gates, to the automation of procedures and processes, etc.), as well as the specific interventions for ports provided for in Investment 2.1: Digitisation of the logistics chain of M3C2.2 INTERMODALITY AND INTEGRATED LOGISTICS of the PNRR;
- **last/second-to-last railway mile and connections to the port network**: the Programme provides for the completion for the most suitable infrastructure

initiatives to optimise the railway accessibility of Italian ports, while respecting the vocation and catchment area of each port. This Programme entails a system of coordinated interventions to develop, port by port and connection by connection, rapid, economical and reliable intermodal services. Specifically, the interventions are defined as 'last' mile, if falling within the port area, and 'second-to-last' mile, if falling within the competence of the national railway infrastructure operator. A portion of the latter measures is also included in the section on railway investments;

- **last road mile**: this Programme provides for the resolution of structural problems in the road accessibility of some Italian ports in order to optimise their market penetration in the catchment area of reference;
- **maritime accessibility**: this Programme provides for measures to improve maritime accessibility, aimed at safely accommodating vessels of a size consistent with the types of traffic to be attracted;
- **resilience of infrastructures to climate change**: this Programme provides for specific interventions aimed at developing and adapting port infrastructures to standards of quality, reliability and sustainability, in order to strengthen the capacity of these infrastructures to cope with and overcome unforeseeable natural weather events;
- **energy and environmental efficiency**: this Programme provides for the identification of coherent and synergic projects aimed at significantly increasing the environmental sustainability of Italian ports as provided for in the National Strategic Plan for Ports and Logistics, Action 7.1 'Measures for energy efficiency and environmental sustainability in ports'. This Programme includes the measures contained in the 'National Cold Ironing Plan', while the interventions for improving energy efficiency and waste management in ports (green ports) are not financed through the resources of the Recovery and Resilience Plan under the Ministry of the Ecological Transition;
- **waterfront and cruise and passenger services**: the Programme provides for a set of measures to adapt land-based reception services, develop cruise terminals where necessary, and implement measures to support port-city relationship through projects to enhance urban waterfronts;
- **industrial activities in ports**: the Programme provides for measures on the shipbuilding sector and industrial activities in ports;
- **selective increase in port capacity**: where required to ensure consistency with the strategic vision outlined above, the Programme provides for a selective increase in port capacity in the Ro-Ro and container segments.

Below are the Tables describing the priority measures for the port sector (Table III.4.1) and the measures to be subjected to feasibility study (Table III.4.2). As mentioned, the recent significant price increases of some of the most relevant construction materials have not been considered.

TABLE III.4.1 PRIORITY PROGRAMMES: PORTS								
Id	Programmes	Description	Cost of Intervention (EUR million)	Resources pursuant to MD 353 'Ports Decree' (EUR million)	PNRR resources (EUR million)	PNC Resources (EUR million)	Other Sources (EUR million)	Residual financing gap (EUR million)
1	Maintenance of public state property	SAVONA – Safety measures along Segno stream	15.00				15.00	0.00
		LIVORNO - Extraordinary dam maintenance interventions	34.69					34.69
		MESSINA - Renovation and repurpose of the offices and entry pavilion in the Messina exhibition centre	14.20				14.20	0.00
		PALERMO - Restoration and functional retrofitting of the former Tirrenia building	19.30					19.30
		PALERMO – Restoration of the Trapezoidal Dock (*Molo trapezoidale*)	26.50	25.50			1.00	0.00
		RAVENNA - Renovation of the Marcegaglia quay	12.57				12.57	0.00
		RAVENNA - Retrofitting of operating quays - third section Lots I, II, III and IV	60.00	45.00			15.00	0.00
		VENICE - Architectural and structural conservation for port use of Building B 'Edificio Sali e Tabacchi' of the 'ex Monopoli di Stato' compendium	13.00					13.00
		VENICE - Sali Dock - Restoration of sheet piling and completion of quay for port use	16.00	16.00				0.00
		TARANTO – Water collection network for rainwater in the public areas of the port and water and sewerage network in the eastern area	18.05				18.05	0.00
		TARANTO – Lot II of safety and groundwater remediation works in the former Yard Belleli area	45.50	45.50				0.00
		TARANTO –San Cataldo Dock: adjustment, enlargement and structural retrofitting of the eastern quay of San Cataldo Dock and Calata 1	25.50				25.50	0.00
		CATANIA - Renovation, reinforcement and retrofitting of the quays and infrastructure of the new port	18.00					18.00
Total maintenance of public state property			318.31	132.00			101.32	84.99
2	Logistics digitisation and ICT	Northern Tyrrhenian Sea Port Authority System (AdSP) of the Southern Tyrrhenian and Ionian Seas - Gioia Sicura: Infrastructures and Info-telematic Services for the Integrated Security of Logistics Areas	18.20				18.20	0.00
		Supply chain digitisation	250.00		250.00			0.00
Total digitisation of logistics and ICT			268.20		250.00		18.20	0.00

TABLE III.4.1 PRIORITY PROGRAMMES: PORTS

Id	Programmes	Description	Cost of Intervention (EUR million)	Resources pursuant to MD 353 'Ports Decree' (EUR million)	PNRR resources (EUR million)	PNC Resources (EUR million)	Other Sources (EUR million)	Residual financing gap (EUR million)
3	Last/Second-to-last Mile Railway and Port Network Connections	GENOA - Upgrading of railway infrastructure connecting to the 'Campasso' park, construction of electric traction network in the 'Molo Nuovo/Parco Rugna'/'Linea Sommergibile' tunnel sections	17.80				17.80	0.00
		VADO LIGURE - Retrofitting of the Railway Terminal (Embellishment of the slope of the access roadway)	20.00				20.00	0.00
		LA SPEZIA - Expansion of railway within the commercial port	38.98					38.98
		LA SPEZIA - Completion of the railway infrastructure inside the merchant port	12.00	12.00				0.00
		CIVITAVECCHIA – Reorganisation of the railway system	18.17				18.17	0.00
		NAPLES - Road and rail links within the port area	26.50				26.50	0.00
		NAPLES - Reorganisation of last-mile rail links and port road network	20.00			20.00		0.00
		NAPLES - Upgrading of the railway station connecting the Port of Naples and construction of related road infrastructure	100.00				38.80	61.20
		TRAPANI - Connection between the port and the industrial area - upgrading	17.80		17.80			0.00
		ANCONA - North waterfront intervention for the adjustment and speeding up of the railway line with excavated material from the seabed of the ports belonging to the Central Adriatic Sea port system	40.30			10.00	30.30	0.00
		TRIESTE – Development of the new layout of the port fitting-out plan, PHASE I	39.53				39.53	0.00
		TRIESTE - Extension of common infrastructure for the development of Punto Franco Nuovo	188.54			180.00	8.54	0.00
		TRIESTE – Development of the new layout of the port fitting-out plan, PHASE II	32.20	32.20				0.00
		MONFALCONE - Construction of an intermodal plaza in a state-owned area (105,000 square metres).	10.50					10.50
		MONFALCONE - Construction of a new railway terminal.	26.00					26.00
		VENICE - Railway and road upgrading at the Via della Chimica junction	12.00			8.00		4.00
		TARANTO - Logistics platform integrated with the intermodal system of the Adriatic corridor	219.14				219.14	0.00
		TARANTO - Primary infrastructure and road-rail accessibility of the 'eco industrial park' area (former Ilva district)	50.00		50.00			0.00
Total last/second-to-last mile rail and port network connections			889.46	44.20	67.80	218.00	418.78	140.68

TABLE III.4.1 PRIORITY PROGRAMMES: PORTS

Id	Programmes	Description	Cost of Intervention (EUR million)	Resources pursuant to MD 353 'Ports Decree' (EUR million)	PNRR resources (EUR million)	PNC Resources (EUR million)	Other Sources (EUR million)	Residual financing gap (EUR million)
4	Last Mile Road	GENOA - Reorganisation of the access system to the operational areas of the Voltri basin	20.03				20.03	0.00
		GENOA - Extraordinary Programme of priority road works in the port area	141.24				141.24	0.00
		BARI - Construction of a road connecting the A14 motorway to the port of Bari	210.00	82.00			128.00	0.00
		CAGLIARI - Road connecting the ro-ro terminal to the west port with junctions on the SS 195	10.00		10.00			0.00
		SAVONA - New urban road system at Dock 8.44	20.00				20.00	0.00
		CIVITAVECCHIA – Main road north ramps, Lot II OO.SS.	102.10	69.04				33.06
		CIVITAVECCHIA - Bridge connecting the seawall (*antimurale*)	10.10			10.00	0.10	0.00
		PIOMBINO - New access road (part of trunk road 398 terre rosse junction)	18.50				17.60	0.90
		PIOMBINO - Access road to the port and the town of Piombino trunk road 398 Section 2 Gagno	66.67				55.00	11.67
		SALERNO - Porta ovest – Section I: construction of a new motorway exit branch, renovation of the motorway junction in the Cernicchiara area, construction of a new connection (in a tunnel) between the motorway and the port	125.92			10.00	115.92	0.00
		MESSINA - Construction of a link road between Viale Gazzi and Approdo delle Ferrovie for Via Don Blasco	27.00				27.00	0.00
		ANCONA - New connection to SS 16	99.61				99.61	0.00
		AUGUSTA – safety interventions on the assets located within the island's port and construction of the third link road between the port areas and the mainland	26.21		26.21			0.00
Total last road mile			877.38	151.04	36.21	20.00	624.50	45.63

TABLE III.4.1 PRIORITY PROGRAMMES: PORTS								
Id	Programmes	Description	Cost of Intervention (EUR million)	Resources pursuant to MD 353 'Ports Decree' (EUR million)	PNRR resources (EUR million)	PNC Resources (EUR million)	Other Sources (EUR million)	Residual financing gap (EUR million)
5	Maritime accessibility	VADO LIGURE - New dam, PHASE I	76.21			45.00	30.71	0.50
		GENOA - New breakwater	950.00			600.00	350.00	0.00
		GENOA - New Torre Piloti	19.50				19.50	0.00
		GENOA - Sampierdarena dredging and passenger port	9.20				9.20	0.00
		LA SPEZIA - Reclamation and excavation of the seabed outside the Fornelli Est dock	11.86				11.86	0.00
		LA SPEZIA – Dredging of the second and third port basins	27.60					27.60
		LA SPEZIA – Dredging of the third port basin in the merchant port and its access channel	36.00					36.00
		CIVITAVECCHIA - Extension of Quay 13 Lot II (Lot II OO.SS.) Under project review	68.33			26.65	0.30	41.38
		CIVITAVECCHIA - New access to the historical basin (Lot II OO.SS.)	43.25			43.00	0.10	0.15
		FIUMICINO - Works to allow navigation of the Tiber from the papal arsenal to the mouth	15.00				15.00	0.00
		CAGLIARI - Construction of a dock for service boats at Porto Foxi – PHASE I	25.00					25.00
		PORTO TORRES – Extension of the Antemurale di Ponente	36.26				36.26	0.00
		SALERNO - Extension of the breakwater pier and resection of the final section of the under-billow pier	23.00				23.00	0.00
		SALERNO - Extension of Manfredi Dock	25.00			15.00		10.00
		SALERNO - Dredging of the Commercial Port and Inlet Channel - PHASE II	40.00			40.00		0.00
		NAPLES - Excavation of the seabed in the port area with deposit of dredged materials in the depositing site of the eastern dock (Section I)	33.63				33.63	0.00
		NAPLES - Excavation of the seabed in the port area with deposit of dredged materials in the reclaimed area of the eastern dock – Lot II	12.50				12.50	0.00
		NAPLES – Extension and upgrading of the Duca D'Aosta dam	150.00			150.00		0.00
		GIOIA TAURO – Completion of the western quay on the north side	16.50		16.50			0.00

TABLE III.4.1 PRIORITY PROGRAMMES: PORTS

Id	Programmes	Description	Cost of Intervention (EUR million)	Resources pursuant to MD 353 'Ports Decree' (EUR million)	PNRR resources (EUR million)	PNC Resources (EUR million)	Other Sources (EUR million)	Residual financing gap (EUR million)
5	Maritime accessibility	GIOIA TAURO - Resection of western quays sections G-H-I	70.00				20.00	50.00
		GIOIA TAURO - Reinforcement and seabed deepening of the port channel along the eastern quay, sections A-B-C	50.00	50.00				0.00
		MILAZZO - Completion of quays and jetties inside the port basin and excavation of the seabed	12.60				1.90	10.70
		TRAPANI – Dredging of the foreland and areas to the west of the Sporgente Ronciglio	67.50			67.00		0.50
		PALERMO - Excavation of the seabed in the Crispi 3 basin and related mattress refurbishment	39.30				39.30	0.00
		TERMINI IMERESE - Completion works of the outer breakwater from loc. mark. 1,205.00 to loc. mark. 1,455.00 (section II) - Functional lot I	20.00				20.00	0.00
		TERMINI IMERESE - Completion of the inner breakwater - Section I	21.45				21.45	0.00
		TERMINI IMERESE - Completion of the outer breakwater from loc mark. 1,205.00 to loc mark. 1,455.00 m stretch, section I	19.11				19.11	0.00
		TERMINI IMERESE - Dredging of the harbour at an elevation of -10.00 a.m,s.l.	35.00				35.00	0.00
		BRINDISI - Completion of port infrastructure through a quayside and construction of the depositing site between the petrochemical complex and Costa Morena Est	58.00			58.00		0.00
		BRINDISI - Completion of the quay in the Capobianco area and implementation of its dredging up to a depth of -12 a.m.s.l.	50.00			30.00		20.00
		BARLETTA - Extension of both outer breakwaters and deepening of the seabed according to the provisions of the Regional Landscape Plan	25.00	19.92			5.00	0.08
		PESCARA - Channel port diversion interventions	52.20	21.20				31.00
		ANCONA - Partial demolition of the existing north dock with regularisation of its seabed	11.00				11.00	0.00
		ANCONA – Seabed deepening of quay 26 and other commercial quays	12.00				12.00	0.00

TABLE III.4.1 PRIORITY PROGRAMMES: PORTS

Id	Programmes	Description	Cost of Intervention (EUR million)	Resources pursuant to MD 353 'Ports Decree' (EUR million)	PNRR resources (EUR million)	PNC Resources (EUR million)	Other Sources (EUR million)	Residual financing gap (EUR million)
5	Maritime accessibility	ANCONA - Works in the sea PHASE II - second stage, construction of a 430 m long inner breakwater	40.00					40.00
		ORTONA – Upgrading and expansion interventions at the port of Ortona – section I as per port Regional Landscape Plan	30.00				30.00	0.00
		ORTONA - Port upgrading interventions	6.00				6.00	0.00
		RAVENNA - Port Hub - PHASE II 'Deepening of the Candiano and Baiona canals, retrofitting of existing operating docks, new terminal in the Trattaroli peninsula and use of extracted material – third section (Deepening of the Candiano and Baiona canals to - 14.50 - Lots I and II)	86.35	40.00		45.00	1.35	0.00
		RAVENNA - Port Hub - PHASE II 'Deepening of the Candiano and Baiona canals, retrofitting of existing operating docks, new terminal in the Trattaroli peninsula and use of extracted material - fourth stage (construction and management of plant for the treatment of excavated material)	155.00			85.00	70.00	0.00
		RAVENNA - Deepening of the Piombone Canal: - Lot I Functional arrangement of the Piombone Canal – Lot II Restoration of the Pialassa Piombone and separation of the valley areas from the port areas through artificial embankment	29.71				29.71	0.00
		VENICE - CHIOGGIA - Excavation of canals as per Regional Landscape Plan and transfer of the areas.	10.00	10.00				0.00
		TRIESTE - Extension of the foot of Dock VI at Punto Franco Nuovo	18.31	8.00			10.31	0.00
		LIVORNO - Reprofiling of the access canal quay in the Torre del Marzocco area – Lot II	16.00				13.00	3.00
		TARANTO - New breakwater protecting the harbour off the roadstead - western section	18.80			15.70		3.10
		TARANTO - New breakwater protecting the harbour off the roadstead - eastern section	20.00			20.00		0.00
		AUGUSTA - Retrofitting of a section of quay at the Commercial Port - Section I	29.31				29.31	0.00
		AUGUSTA - Completion of the refurbishment and reinstatement of the breakwater - North and Central Block – Section I	54.63	54.63				0.00

Total maritime accessibility		2676.11	203.75	16.50	1240.35	916.50	299.01

TABLE III.4.1 PRIORITY PROGRAMMES: PORTS

Id	Programmes	Description	Cost of Intervention (EUR million)	Resources pursuant to MD 353 'Ports Decree' (EUR million)	NRP resources (EUR million)	PNC Resources (EUR million)	Other Sources (EUR million)	Residual financing gap (EUR million)
6	Resilience of infrastructure to climate change	NAPLES - Redevelopment of the monumental area. New passenger terminal at Calata Beverello - Port-city connections and reorganisation of mobility	23.49				23.49	0.00
		NAPLES - Upgrading and redevelopment of the monumental area's infrastructure for passenger transit, port activities and connections with the city	74.10			26.00		48.10
		SALERNO - Reinforcement and functional retrofitting of some docks and quays	40.00			40.00		0.00
		PALERMO - Reinforcement of the south quays of the Piave and S.Lucia docks and strengthening of the static capacity of the Vittorio Veneto quay	45.00			45.00		0.00
		PALERMO - Reinforcement of the Acquasanta breakwater	16.00			12.00		4.00
		PALERMO - Completion of the Arenella port breakwater	19.00			19.00		0.00
		TERMINI IMERESE - New quay for logistics	36.00		36.00			0.00
		CATANIA – Reinforcement and refurbishment of the outer breakwater, strengthening and reinforcement of the head	70.00			70.00		0.00
		MANFREDONIA - Renovation and re-purpose of deep-sea dock	120.00		40.00	80.00		0.00
		ANCONA – Construction of a quay along the outer side of the Clementino Dock	22.00				22.00	0.00
		SAN BENEDETTO D.T. – Depositing site for dredged sediments	18.00				18.00	0.00
		PESARO - Depositing site for dredged sediments	11.00				11.00	0.00
		ORTONA - Last mile connection to the port and upgrading of related infrastructure, reactivation of the railway section of the north dock and deepening of the seabed through reclamation and reinforcement of the quay	19.80		19.80			0.00
		ORTONA - Refurbishment of Martello Dock	4.00				4.00	0.00
		VENICE – Restoration of the margins of depositing site B - Restoration of environmental embankments on the north bank of the south channel	27.50			27.50		0.00
		MARINA DI CARRARA - Waterfront	33.37			10.17	23.20	0.00
		LA SPEZIA - Renovation and extension of Italia Dock, with redevelopment of protective reefs	17.00					17.00
		VILLA SAN GIOVANNI - structural renovation of slipway '0' quay, construction of new high-speed boats quay and passenger terminal	4.00		4.00			0.00

		REGGIO CALABRIA - Retrofitting and redevelopment interventions at Margottini quay	6.50		6.50			0.00
		AdSP dello Stretto - Strait of Messina Territorial Continuity Interventions	37.00				37.00	0.00
Total resilience of infrastructure to climate change			643.76		106.30	329.67	138.69	69.10

TABLE III.4.1 PRIORITY PROGRAMMES: PORT MODALITIES

Id	Programmes	Description	Cost of Intervention (EUR million)	Resources pursuant to MD 353 'Ports Decree' (EUR million)	PNRR resources (EUR million)	PNC Resources (EUR million)	Other Sources (EUR million)	Residual financing gap (EUR million)
7	Energy and environmental efficiency	NAPLES - Executive design and execution of works to complete the port sewage network	18.00				18.00	0.00
		VENICE – Implementation of safety interventions at Site of National Interest of Venice - Porto Marghera	41.69				41.69	0.00
		WESTERN LIGURIAN SEA PORT AUTHORITY - Genoa, Savona, Vado Ligure - Cold Ironing	30.10	29.40			0.70	0.00
		EASTERN LIGURIAN SEA PORT AUTHORITY - La Spezia - Cold Ironing	17.50			17.50		0.00
		NORTHERN TYRRHENIAN SEA PORT AUTHORITY- Livorno Piombino, Portoferraio - Cold ironing	77.50			77.50		0.00
		THE NORTH TYRRHENIAN SEA PORT AUTHORITY - Civitavecchia - Cold Ironing	80.00			80.00		0.00
		CENTRAL TYRRHENIAN SEA PORT AUTHORITY - Naples, Salerno - Cold Ironing	40.00			40.00		0.00
		SARDINIAN SEA PORT AUTHORITY - Cagliari, Olbia, Golfo Aranci, Porto Torres, S. Teresa di Gallura, Portovesme - Cold Ironing	70.83			70.83		0.00
		WESTERN SICILY SEA PORT AUTHORITY - Palermo, Trapani, Termini Imerese, Porto Empedocle - Cold Ironing	47.00			47.00		0.00
		EASTERN SICILY SEA PORT AUTHORITY - Augusta, Catania - Cold Ironing	89.10			89.10		0.00
		PORT AUTHORITY OF SOUTHERN THYRRENIAN AND IONIAN SEAS - Gioia Tauro - Cold Ironing	2.00			2.00		0.00
		IONIAN SEA PORT AUTHORITY - Taranto - Cold Ironing	55.00			55.00		0.00
		STRAIT OF MESSINA PORT AUTHORITY - Messina, Milazzo, Reggio Calabria, Villa San Giovanni - STRETTO GREEN Project - LNG coastal storage and *cold ironing*	110.00			50.00	60.00	0.00
		SOUTHERN ADRIATIC SEA PORT AUTHORITY - Bari, Brindisi - Cold Ironing	25.66				25.66	0.00
		CENTRAL ADRIATIC SEA PORT AUTHORITY - Ancona, Ortona, Pescara, Pesaro, San Benedetto del Tronto - Cold ironing	11.00			11.00		0.00
		NORTHERN-CENTRE ADRIATIC SEA PORT AUTHORITY - Ravenna - Cold Ironing	35.00			35.00		0.00

		NORTHERN ADRIATIC SEA PORT AUTHORITY - Venice - Cold Ironing	89.80			89.80		0.00
		EASTERN ADRIATIC SEA PORT AUTHORITY - Trieste, Monfalcone - Cold Ironing	23.75			23.75		0.00
Total energy and environmental efficiency			863.93	29.40		688.48	146.05	0.00

TABLE III.4.1 PRIORITY PROGRAMMES: PORTS

Id	Programmes	Description	Cost of Intervention (EUR million)	Resources pursuant to MD 353 'Ports Decree' (EUR million)	PNRR resources (EUR million)	PNC Resources (EUR million)	Other Sources (EUR million)	Residual financing gap (EUR million)
8	Waterfront and cruise and passenger services	GENOA - Waterfront di Levante	10.00				10.00	0.00
		GENOA - Mitigation and completion of the Prà canal promenade on the south side - upgrade	15.50				15.50	0.00
		LA SPEZIA - New maritime passenger station in the first port basin	42.50				42.50	0.00
		NAPLES - Redevelopment of the monumental area - Recovery and enhancement of the former Magazzini Generali building	20.10	20.10				0.00
		PALERMO - Maritime Station: re-functionalisation and restyling	28.62				28.62	0.00
		BARI - Renovation and expansion of ferry and cruise terminal	10.00					10.00
Total waterfront and cruise and passenger services			126.72	20.10			96.62	10.00
9	Industrial activities in ports	GENOA – Safety interventions and hydraulic retrofitting on the Rio Molinassi and Rio Cantarena to ensure compliance with standards of safety in the workplace. as well as to streamline the accessibility of the industrial port area of Genova Sestri Ponente - PHASE I	176.90				176.90	0.00
		GENOA - Safety interventions and hydraulic retrofitting on the Rio Molinassi and Rio Cantarena to ensure compliance with standards of safety in the workplace, as well as to streamline the accessibility of the industrial port area of Genova Sestri Ponente - PHASE II	428.00				428.00	0.00
		GENOA - Hennebique Redevelopment	133.27				133.27	0.00
		GENOA - New Mineral Oils dock	15.15				15.15	0.00
		CAGLIARI - Primary infrastructural works at Porto Canale for shipbuilding activities – PHASE II	31.33	31.33				0.00
		NAPLES - Static restoration of dry dock no. 2 with adaptation of the pumping system of docks no. 1	29.00				29.00	0.00
		CASTELLAMMARE – Safety interventions in the port	35.00				35.00	0.00
		GIOIA TAURO - Construction of an industrial complex in the former Isotta Fraschini Free Zone	16.50				16.50	0.00

		MILAZZO – Construction of an open-air industrial wharf in Giammoro	24.99				24.99	0.00
		PALERMO – Safety interventions on the 150,000 d.w.t. Dry Dock - Works and Design - Functional Lot II	81.00	81.00			0.00	0.00

TABLE III.4.1 PRIORITY PROGRAMMES: PORTS

Id	Programmes	Description	Cost of Intervention (EUR million)	Resources pursuant to MD 353 'Ports Decree' (EUR million)	PNRR resources (EUR million)	PNC Resources (EUR million)	Other Sources (EUR million)	Residual financing gap (EUR million)
9	Industrial activities in ports	PALERMO – Safety interventions on the 150,000 d.w.t. Dry Dock - Works and Design - Functional Lot I	39.00				39.00	0.00
		PIOMBINO - Interventions connected to the new RLP and/or to the FPA of 24/04/14 for the construction of areas for industrial logistics - functional lot 1	22.75				18.20	4.55
		PIOMBINO - Interventions as per new RLP - Logistics/industrial areas – West Dock North Quay - Functional Lot I	41.86					41.86
		TARANTO - San Cataldo Dock: multi-purpose service centre for port use	12.75				12.75	0.00
		ANCONA - Construction of a new plaza to extend the existing one, construction of a new fitting-out quay, extension of the dry dock	40.00	40.00				0.00
Total industrial activities in ports			1127.50	152.33			928.76	46.41
10	Selective increase in port capacity	GENOA - Extension of the Ponte Ronco and Canepa Container Terminal and complementary works for flooring to extend the Ponte Ronco and Canepa Container Terminal	86.48				86.48	0.00
		VADO LIGURE - Construction of a seaward expansion for a new container terminal and redevelopment of the existing bulk terminal and two wharves for unloading oil products	296.71				296.71	0.00
		GENOA - Infrastructural upgrading of the new Calata Bettolo for interventions under agreement replacing lot 1	16.00				10.31	5.69
		LA SPEZIA - Canaletto square and quay	85.00				85.00	0.00
		LA SPEZIA - Construction and electrification of the new cruise terminal in the first La Spezia port basin	33.54			30.00		3.54
		LA SPEZIA - Gulf Terminal Square and Quay	10.54				10.54	0.00
		LIVORNO - Darsena Europa	450.00	200.00			250.00	0.00
		CIVITAVECCHIA - First Functional Lot (Section II): Dockyard Services	36.10				36.10	0.00
		FIUMICINO - Commercial Port (RLP) first functional lot (1 section)	71.00	30.00			26.00	15.00

		FIUMICINO - Commercial Port (RLP) first functional lot (completion). Project under review	10.00				10.00	0.00
		GAETA - Interventions to complete the commercial port	33.09					33.09

TABLE III.4.1 PRIORITY PROGRAMMES: PORTS

Id	Programmes	Description	Cost of Intervention (EUR million)	Resources pursuant to MD 353 'Ports Decree' (EUR million)	PNRR resources (EUR million)	PNC Resources (EUR million)	Other Sources (EUR million)	Residual financing gap (EUR million)
10	Selective increase in port capacity	CAGLIARI - Construction work on the quaysides of the new Ro Ro Terminal at the western inner port of the Channel Port	100.00			99.35	0.65	0.00
		CAGLIARI - Extension of the quay on the north-east side of the Channel Port	33.72					33.72
		CAGLIARI - Infrastructuring of the areas behind the new quays on the south-west side of the so-called turning basin of the Channel Port-G1W and G2W area	13.82	13.82				0.00
		NAPLES - Completion of the Darsena di Levante	20.00			20.00		0.00
		MESSINA - Construction of the Tremestieri logistics platform with port terminal	74.47				74.47	0.00
		BRINDISI - Completion of ferry port berths and Ro-Ro in St. Apollinare (in 2 functional sections)	35.50				29.33	6.17
		TARANTO – Multi-purpose dock: dredging of 2.3 mm^3 of sediment	83.00				83.00	0.00
		ANCONA - sea works PHASE II: completion and functionalisation of the new straight quay and the yards behind it - first functional section	37.00				37.00	0.00
		RAVENNA - Port Hub - PHASE I Deepening of the Candiano and Baiona canals, adjustment of existing operating docks, new terminal in the Trattaroli peninsula and use of extracted material – first and second stage	269.08				250.08	19.00
		RAVENNA - Adjustment of operating docks – fourth section	70.00					70.00
		TRIESTE – Interventions preliminary to the settlement of logistic and industrial activities in the Noghere area, also in view of the integration with the Noghere port terminal under construction	60.00			60.00		0.00
		TRIESTE - Partial docking project at the Noghere terminal (PHASE I as per RLP 2016), including dredging of the service channel and connection to the road system	45.00			45.00		0.00
		TRIESTE – Interventions in the project for the infrastructural and functional modernisation of the container terminal at Dock VII in the Port of Trieste	100.50			100.50		0.00
		MONFALCONE - Refurbishment and reinforcement of the depositing yards (1000x40m) for adjustment to higher capacity cranes.	17.35					17.35

		VENICE - Montesyndial - New Container Terminal	184.45			35.15	149.30	0.00
Total industrial activities in ports			2272.35	243.82		390.00	1434.97	203.56
	TOTAL		10063.72	976.64	476.81	2886.50	4824.39	899.38

TABLE III.4.2: PRIORITY PROGRAMMES SUBJECTED OR TO BE SUBJECTED TO FEASIBILITY PROJECT

Id	Name	Description
1	Maintenance of public state property	RAVENNA - Preliminary design for the recovery and redevelopment of the Fish Market in Marina di Ravenna
		FIUMICINO – Measures to ensure hydraulic safety of the mouth and new pedestrian bridge
		CAGLIARI - Preliminary design of works for the extension of the quayside of the bulk terminal
		BRINDISI - Maintenance and modernisation interventions on the port facilities of the Naval Station of the Italian Navy
		BARI - Redevelopment interventions in the former Cianciola area
		TARANTO - Construction of the new Guardia di Finanza barracks
		VENICE - Adjustment of the former state monopoly areas (various sections) within the port area
		VENICE - Management and adjustment of rainwater drainage networks at Dock B of the Terminal in Porto Marghera
		RIO MARINA - Technical and functional adjustment of the Port Master Plan
		CATANIA - Extension and reinforcement interventions on the eastern quay of the fishing port
		AUGUSTA - Extraordinary maintenance of the commercial port and Nuova Darsena Servizi
2	Logistics digitisation and ICT	LIVORNO - Fibre optic connection between the port and the Interporto 'A. Vespucci' in Tuscany
3	Last/Second-to-last Railway and Port Network Connections	GIOIA TAURO - Completion of urbanisation interventions (networks, materials and roads)
		GIOIA TAURO - Redevelopment and modernisation of the dry port
		LA SPEZIA - Logistics platform at S. Stefano Magra dry port - functional lot III
		LIVORNO, PIOMBINO - Piano del Ferro
		RAVENNA – Upgrade of the southern railway backbone
		TRIESTE – Development of the new layout of the port fitting-out plan, PHASE I bis-ICT
		TRIESTE - Renovation and functional adjustment of the Aquilinia - former Aquila railway hub.
		TRIESTE - Renovation and functional adjustment of the Aquilinia - Muggia railway hub.
		TRIESTE - Construction of the logistic-railway services operations centre for the new layout of the port fitting-out plan of the Punto Franco Nuovo
		MONFALCONE - Functional upgrading of railway infrastructure
4	Last Mile Road	LIVORNO - Reorganisation and streamlining of the port road belt - Separation of port and city traffic flows - Reduction of interference, accidents and emissions - Streamlining and optimisation
		LA SPEZIA - Interventions to organise and set up buffer areas serving road haulage
		BARI - Track removal interventions and upgrading of the Marisabella - S.Vito connection road
		PIOMBINO - Construction of the new Poggio Batteria depositing site
5	Maritime accessibility	CIVITAVECCHIA - second section of the Antemurale Colombo extension. Project under review
		LA SPEZIA – Emergency interventions to implement seabed safety measures at Italia Dock

TABLE III.4.2: PRIORITY PROGRAMMES SUBJECTED OR TO BE SUBJECTED TO FEASIBILITY PROJECT		
Id	Name	Description
		LA SPEZIA - Reclamation and following excavation of the area facing the Garibaldi dock and access channel to the first port basin
		RAVENNA - Completion of docks on the left bank of the Piombone Canal
		RAVENNA - Reinforcement of breakwaters
		GIOIA TAURO – Construction of a quay along the southern turning basin for the potential establishment of other multipurpose activities

TABLE III.4.2: PRIORITY PROGRAMMES SUBJECTED OR TO BE SUBJECTED TO FEASIBILITY PROJECT		
Id	Name	Description
5	Maritime accessibility	TRAPANI – Interventions for adjusting the Garibaldi quay
		PORTO EMPEDOCLE - Dredging operations
		PORTO EMPEDOCLE – Mattress refurbishment interventions on the western dock
		TARANTO - Dredging and maintenance of the seabed in front of the dock in the roadstead
		PESCARA – Dredging interventions at the Commercial dock and ancillary works
		PESARO - Dredging interventions with special reference to sediments from the flooding of the Foglia river
		LIVORNO - Resection of Calata Orlando and Mooring dock 55
		PIOMBINO - Extension of internal docks – PHASE I
		PIOMBINO - Infrastructural interventions (including environmental ones) for the completion of outer/inner breakwaters
		AUGUSTA - Adjustment of a section of the commercial port quay for the berthing of container ships – Section II
		AUGUSTA - Completion of the refurbishment and reinstatement of the south section breakwater – Section II
		AUGUSTA CATANIA - Seabed protection and marine salvage interventions
		SALINE JONICHE - Dredging operations
		TRIESTE - Construction of a shelter port at the Luigi Rizzo breakwater
		TRIESTE - Construction of the technical-nautical services area
		TRIESTE - Seabed deepening interventions in the navigable channel
		MONFALCONE – Construction of the technical-nautical service area and streamlining of sub-services
6	Resilience of infrastructure to climate change	LA SPEZIA - Extraordinary quay maintenance works in the merchant port
		PIOMBINO - Infrastructural interventions (including environmental ones) as per New Port Master Plan for the construction of the docks in front of the depositing site including dredging and construction
		PIOMBINO – Environmental and landscape mitigation of the waterfront
7	Energy and environmental efficiency	LA SPEZIA – Protection area for the residential area in Canaletto and Fossamastra districts - 1st and 2nd functional lot, as well as the relocation towards the sea of the sound-proof barriers between Via Giulio Della Torre and Via S.Cipriano with the completion of green areas and cycle path
		CIVITAVECCHIA - Sewage plant (Lot II OO.SS.)
		CIVITAVECCHIA - Southern sewage plant (Lot II OO.SS.)
		PALERMO – Refurbishment of the port sewage system r

TABLE III.4.2: PRIORITY PROGRAMMES SUBJECTED OR TO BE SUBJECTED TO FEASIBILITY PROJECT		
Id	**Name**	**Description**
		VADO LIGURE - Construction of infrastructure for the use of electricity in the port
		VADO LIGURE - Energy production from renewable sources
		GENOA - Energy production from renewable sources
		GENOA - Intervention on inefficient port energy infrastructures
		GENOA – Construction of infrastructures for the use of electricity in the port
		TRIESTE - Construction of a new electrical cabin at Punto Franco Nuovo.
		TRIESTE AND MONFALCONE - Upgrading and energy efficiency of state-owned buildings
8	**Waterfront and cruise and passenger services**	PORTO EMPEDOCLE- Construction of quays at the Crispi SO dock and new *porpuse* terminal with restyling and functional adjustment of the state-owned buildings
		TRAPANI - Regeneration of the historic waterfront of the port
		RAVENNA - Connection roads to the Porto Corsini Cruise Terminal
		VENICE - Construction of a new cruise terminal
		CATANIA - Construction of a maritime station
		RAVENNA - Project for the upgrade of the ferry terminal
		RAVENNA - Project for the construction of one or more port gates
9	**Industrial activities in ports**	GENOA - Redeployment of Carmagnani/Superba coastal depots
		GAETA - Construction of a new slipway for shipyard relocation - Frattasi plan
		AUGUSTA - Construction of the shipbuilding district
		GIOIA TAURO - Dry Dock - Industrial Plant
		BRINDISI - Construction of a new gas wharf and retrofitting of the Enichem wharf.
10	**Selective increase in port capacity**	MARINA DI CARRARA – Extension of the Taliercio quay
		CIVITAVECCHIA - Large Tanker and Energy Dock (Mare Nostrum). Project under review
		MESSINA - Upgrading and expansion of the Marconi, Peloro and Rizzo docks
		MESSINA – Adjustment of the I Settembre quay
		MESSINA - Upgrading and expansion of the logistics terminal at Nuremberg Dock
		BARI - Redevelopment of the S. Cataldo dock - Enhancement of the infrastructures serving the logistic headquarters of the Port Authority
		TARANTO - Decommissioning from military purposes, cultural-tourist recovery/enhancement of the 'Former Torpediniere Station' area in the Mar Piccolo with simultaneous reallocation of Navy competencies – Section I
		ANCONA - Works at sea, Phase II - completion and functionalisation of the new straight quay and the back square (second functional section)
		ANCONA - Works at sea – Phase IV
		ANCONA – Dredging of the harbour basin and transfer of sediment behind the northern reef
		CATANIA – Expansion works on the inner quays of the outer breakwater between the base and the east mooring pier

III.5 AIRPORTS

In line with the previous Annexes to the Economic and Financial Document, priority Programmes and actions have been identified to define the areas to be upgraded within the airport network. The future of air transport strongly depends both on its capacity for integration within a coherent and harmonised transport network, and on the development of technologies capable of mitigating environmental impacts. A new national strategy should be planned on an intermodal mobility system while encouraging the reconversion of air transport and related infrastructures, promoting decarbonisation Programmes to achieve zero emissions. It is therefore necessary to **encourage the renewal of fleets by purchasing new generation aircrafts which are less polluting both in terms of harmful emissions and other environmental impacts, such as noise**. Even the strategy for the development and use of smaller airports will necessarily undergo technical-economic and environmental optimisation assessments.

In terms of planning, traffic forecasts for the next 15 years are being updated and the **National Airport Plan is being revised**. As part of this revision, a special section will cover the definition of the strategies underlying the development of the future freight transport network, in order to define infrastructure needs and intervention priorities in this sector. This document will also allow updating the volumes and characteristics of expected traffic and the development strategies to be implemented in the next annual editions of this document.

Specifically, the National Airport Plan is currently expected to be revised in 2035, thus years later compared to the current version. Aside from the amendments to be introduced in the short term to consider the impact of COVID-19 pandemic on the airport sector, **the rough estimate of passenger traffic can currently be set at a reference value of 300 million passengers as of 2035**. However, these estimates will be confirmed in light of the forecasts contained in the next reviews and sector analyses.

Airport investments comply with the Programme Contract procedures, which regulate the commitments undertaken by the companies holding total management concessions for the construction of infrastructures aimed at upgrading and developing airports during the contractual period. The costs for the interventions provided for in the Programme Contracts are to be borne by the Airport Operator, which will incur the costs of the financing. At the same time, the effects of these costs are incorporated in the airport fees and may affect the levels of accessibility and competitiveness of the areas served. Therefore, an assessment on their ability to meet public interest objectives remains key.

Over a short-term scenario, The Programme Contracts represent the implementation of the interventions provided for in the airport Master Plans to meet the demand for air transport generated and attracted by the reference catchment area of the airport in question. The procedures for assessing environmental and urban planning compatibility are carried out on the airport Master Plans, upon acquisition of the related authorisations. This approval process allows the direct construction of the assets contained in the Master Plans, ensuring compliance with construction schedules of the assets as provided for in the Programme Contracts.

The specific Programmes outlining development areas are based on the forecasts and contents of the current National Airport Plan, annexed to Presidential

Decree No. 201 of 17 September 2015. This strategic framework for the development of the national air transport network will have to consider the outcomes of the appeals filed against the approval acts of some Airport Development Plans, such as the case of Rome-Fiumicino and Florence. Specifically, the failure to conclude the approval process for the medium-term development of the Rome-Fiumicino airport jeopardises the whole national airport system, given its role as primary international *hub* within the system itself. Because of this role, the concession-holding company has presented a new project, revised in the light of the results of the EIA conducted on the previous one, which is currently being assessed by ENAC.

AIR CARGO DEVELOPMENT

The Programme encompasses all measures aimed at supporting air cargo, a strategic sector for promoting important export activities due to the value of the goods handled. **In 2021, cargo traffic in Italy confirmed its positive trend**, despite the drop in passenger traffic and the effects of the persisting pandemic crisis. The first traffic data available show an increase of about 32% in the volume of goods handled by air, with more than one million tonnes handled.

The Programme includes measures aimed at increasing the attractiveness and competitiveness of Italian **air cargo**, to allow a favourable positioning of the two main national airports fitted with a cargo city (Milan Malpensa and Rome Fiumicino) in the continental and global rankings; the Programme also includes infrastructural measures relating to the development of new capacity and aimed at resolving the 'bottlenecks' in the widespread handling of cargo in the country. Among the infrastructural measures, the most significant relates to the development of the Malpensa cargo hub, a project designed to bring the capacity of the cargo city close to 1 million tonnes, nearly twice the current capacity, but equal to 50% of the traffic handled by Paris Charles de Gaulle and Frankfurt. Other interventions on the cargo city are provided for in the Programme Contracts of Rome Fiumicino, Bergamo, Catania, Bologna, Venice, Naples and Parma. **The economic volume of these investments, over the four-year period considered by the various Programme contracts, amounts to EUR 73.5 million.**

RAIL ACCESSIBILITY

The Programme aims to increase the standards of accessibility by public transport to the airports and especially by rail, as well as to improve connections between airports belonging to the same airport system. In the long-term plan, all airports included in the Integrated National Transport System (*Sistema Nazionale Integrato dei Trasporti* – SNIT) Level I network will be subjected to feasibility projects for the improvement of the level of rail accessibility and intra-airport system connections. Among the airports with the greatest potential in terms of current traffic and growth potential we find Bergamo-Orio al Serio, Brindisi, Catania, Florence, Milan-Linate, Naples, Pisa, Rome-Fiumicino and Venice, where the main interventions concern the development of the railway network, the construction or completion of sections of the metro line and light-weight vehicles (such as people movers) ensuring connection with the airport in question.

Specifically, major projects involve the railway connection to Rome-Fiumicino, Venice, Bergamo, Brindisi and Catania airports, as well as the feasibility study for the Pisa-Florence high-speed service, while metro line extension interventions involve Milan-Linate, Florence (tramway recently completed) and Naples Capodichino. As part of the projects included in the PNRR, further developments concern the railway connection of Olbia airport, interventions for the inter-modality and accessibility of Trapani Birgi and the completion of the Salerno Arechi - Pontecagnano Airport connection.

OPTIMISATION OF THE AIRSIDE CAPACITY UTILISATION

On the one hand, this Programme includes technological and/or procedural interventions that enable an increase movement capacity (both in airspace and on the ground) and thus a greater volume of traffic with unchanged physical infrastructure. On the other hand, the Programmes include interventions, including infrastructural ones, aimed at improve capacity utilisation. Infrastructural interventions to increase airspace capacity support the planned increase in airport capacity. These interventions in airspace management are part of the Programme for the implementation of the so-called 'Single European Sky' initiative, which began in 2005 and is expected to end after 2035. In addition to increasing capacity, the Programme aims to reduce the impact of CO2 and increase safety (conceived as both safety and security).

These Programmes are studied, developed, financed and implemented by the main provider of air navigation services (ENAV SpA), using revenue from terminal and route charges, from the sale of its own services, and from national and European co-financing. **Further resources are linked to the agreements concluded between the Ministry and the ENAV Group, within the framework of Mission 3, Component 2, of the PNRR, which include a total of EUR 110 million** (Investment 2.2 - Digital innovation of airport systems - Sub. Intervention 2.2.1 - Digitisation of maintenance and aeronautical data management - Sub. Intervention 2.2.2. - Optimisation of instrument approach procedures). Specifically, some of these projects concern:

- ***performance based navigation*** **(pbn) procedures for Italian airports.** The procedures developed have been designed to facilitate the sequencing of aircraft by reducing the release of vectoring heading, for the various available runways, in compliance with Area Navigation criteria. These procedures have already been implemented in the airports of Rome Ciampino, Rome Fiumicino, Brescia, Bologna, Verona, Alghero, Olbia, Palermo, Milan Malpensa, Bergamo and Venice. Implementation is also planned in all other airports;
- **the Free Route National Airspace**. According to the Free Route operational concept, aircrafts can fly through trajectories believed to be optimal *(trajectory-based),* rather than following strict and well-defined routes imposed by predetermined reporting points. It is implemented above flight level 305, in compliance with a European Programme launched on 8 December 2016 and completed on 24 May 2018 in Italy;

- **H.I.R.O (*High Intensity Runway Operations*)**. Reduction of runway (2,400 m) and in-flight separations (2.5 NM instead of 3NM), for Rome Fiumicino airport; increase in airport capacity through optimised use of runway infrastructures;
- **AMAN (*Extended Arrival MANager*).** Early planning of the arrival sequence as early as the *en-route* phase to optimise management in the final approach phases, increasing runway capacity, to be implemented in the main area centres and serving the five main European airports;
- **DMAN (*Departure MANagement*).** At the main airports, early definition of the optimised departure sequence through collaborative information sharing between all stakeholders, increasing airport capacity;
- **A-CDM (*Airport Collaborative Decision Making*)**. At the main airports, it supports the DMAN through the sharing of information on flight planning phases before taxiing, thus significantly contributing to improving the airport capacity;
- **the new European Wake Vortex Re-categorisation (RECAT-EU) separation limits**. The European Wake Vortex Re-categorisation (RECAT-EU) aims to redefine turbulence categories and the resulting minimum separation imposed between aircraft, thereby increasing runway and airspace capacity;
- **the ATM-airport platform**. The ATM platforms (the system for processing and submitting the information needed by Air Traffic Controllers to carry out air traffic planning and control operations) present at the main national airports, are being replaced with a new platform that will ensure the monitoring of all vehicles (aircraft and land vehicles) over the entire airport area, also providing a series of ground traffic planning tools and alarms in the event of potential conflicts between moving vehicles (A-SMGCS);
- **the Remote Towers**. The Remote Tower project involves the management from a remote-control centre of air traffic arriving and departing from several airports. This solution ensures greater flexibility in the management of service schedules at smaller airports and reduces costs without affecting security and/or service provision. The Digital Tower is currently being implemented at Brindisi Airport.[19]

Moreover, as part of the projects included in the PNRR, specific interventions will be carried out at airports, Approach Control Services (ACS) and Area Control Centres (ACC), to fit them with fully digitalised air traffic management systems. These projects, including the New Tower Automation project, involve the airports of Rome Fiumicino, Bergamo, Lamezia, Bari, Verona, Turin, Genoa, Naples, Florence, Palermo, and the ACCs of Rome and Milan.

As for infrastructural interventions, the Programme includes interventions on flight infrastructures increasing runway capacity. The projects relating to the construction of new runways being reviewd involve the airports of Rome Fiumicino, Florence and Catania. In the case of Rome-Fiumicino, the revised project for airside development has been presented by the concession-holding company and is being evaluated by ENAC. The aim of the intervention is to accompany a growth path estimated at over 60 million passengers per year in the medium-long term; it therefore represents an important investment in view of the Jubilee 2025 and other

[19] The Digital Tower has the same technological infrastructure and operational procedures as a Remote Tower. The only difference is that it is located on the same site as the airport to which it is connected.

international events that will be held in the Capital. In the case of Florence and Catania, the interventions are aimed at removing infrastructural constraints that are currently limiting the use of some categories of aircraft in both airports while ensuring greater sustainability of airport operations. Another important intervention concerns the extension of the runway at Salerno Pontecagnano, which will allow fixing the capacity limits of Naples International Airport, following the creation of the Campania airport system resulting from the commercial agreement between the two management companies.

SECURITY AND INVESTMENTS FOR CUSTOMER SUPPORT

The Programme incorporates interventions aimed at increasing the levels of security controls and those supporting passengers, to improve the quality of service and the travelling experience, thus favouring less invasive checks while increasing security standards for travellers. As far as security is concerned, systems and equipment for checking hold baggage are still being implemented following the implementation of EU Regulation 1998/2015. A particular area of investment is the improvement of passenger services at terminals. The main projects included in the Programme are related to the development of terminals at the airports of Venice, Bergamo Orio al Serio, Verona, Rome-Fiumicino, Pisa and Milan Linate.

Below are the tables outlining priority Programmes and interventions, which contain a detailed description, economic value, available funding (covered by rates) and updated residual financing gaps. In addition, the tables provide a list of the interventions subjected to project reviews and Feasibility Projects.

TABLE III.5.1: PRIORITY PROGRAMMES - AIRPORTS						
Id	**Name**	**Description**	**Cost of intervention (EUR million)**	**Available resources (EUR million)**	**Residual financing gap (EUR million)**	**Notes**
1	Rail accessibility	Connection of some of the main urban nodes to airports through the Italian Railway Infrastructure Manager *(Rete Ferroviaria Italiana* - RFI) network (Venice HS, Bergamo HS, Catania, Brindisi) or metro (Naples, Milan Linate, Florence), including through the construction of interchange stations or the improvement of their accessibility or integration (Genoa, Lamezia Terme)	848	n.a	n.a	The category only includes complementary works carried out within the airport area by the management companies
2	Development of the air cargo	Capacity building (cargo city, logistic spaces, squares) for competitiveness in the air cargo sector, and the integration of the logistics network for the airports of Milan Malpensa, Rome Fiumicino, Naples, Parma, Bergamo Orio Al Serio, Catania, Bologna, Venice	136	0	0	Rate-funded investments as per Cdp
3	Developing the airside capacity of existing airports	Upgrade of the Runway infrastructure	440	0	0	Rate-funded investments as per Cdp
4	Passenger terminals, security and passenger experience	Interventions to improve security, and passenger support interventions to improve service quality and the travelling experience	1,097	0	0	Rate-funded investments as per Cdp
		Expansion of terminal capacity for intercontinental hubs (Rome Fiumicino, Milan Malpensa, Venice)	580	0	0	Rate-funded investments as per Cdp
5	Digital innovation in airport systems (PNRR)	Investment 2.2 under PNRR - M2C3 component: Sub-intervention on digitisation of maintenance and aeronautical data management and Sub-intervention on optimisation of APT approach procedures	110	0	0	Agreements as per MD No. 477 of 29 November 2021
TOTAL			**3.211**	**0**	**0**	

TABLE III.5.2: PROGRAMMES FOR PROJECT REVIEW - AIRPORTS			
Id	**Name**	**Description**	**Reasons and Objectives of the Project Review**
1	Rail accessibility	Enhancement of rail services connecting to Malpensa (Rho-Gallarate, Southern connection, Northern connection)	Project under the responsibility of RFI e with no other interventions under the responsibility of ENAC

TABLEIII.5.3: PROGRAMMES TO BE SUBJECTED TO FEASIBILITY PROJECT - AIRPORTS			
Id	**Name**	**Description**	**Objectives of the Feasibility Project**
1	Rail accessibility	Connections of some of the main urban nodes to the airports by metro or RFI network (Naples, Milan Linate, Genoa, Lamezia Terme, Bergamo, Florence, Venice, Catania), including through the construction of park and ride facility or the improvement of their accessibility or integration	Identify the best solution to make sure that all SNIT Level I airports are fitted with adequate rail accessibility
		Improvement of Rome-Fiumicino railway accessibility: upgrading of the current infrastructure, including with technological interventions and amendments to station strategic plans, and upgrading of the current RFI railway terminal by evaluating the possibility of a railway connection to the Rome-Civitavecchia line	Upgrade the current FL1 line, adjust the airport station to allow the use of HS trains with the addition of new tracks, while building a new access to the airport also from the Rome-Civitavecchia line
3	Development of airside capacity at existing airports	Introduction of technological and organisational innovations and development of ancillary infrastructures for greater exploitation of airport capacity and airspace management: Free Route Airspace (FRA) - new route definition model based on direct trajectories, new minimum separation limits between aircraft, PERFOMANCE BASED NAVIGATION (PBN) procedures for Rome Fiumicino airport	Optimise the use of existing airside capacity
4	Passenger terminals, security and passenger experience	Interventions to improve security, aimed at increasing the levels of security checks and interventions to support the passenger to improve the quality of service and the travelling experience	Make the passenger route seamless by ensuring ever-increasing security requirements

TABLE III.5.4: INTERVENTIONS UNDER PROJECT REVIEW - AIRPORTS			
Id	**Name**	**Description**	**Reasons and objectives of the Project Review**
1	Rome Fiumicino airport air and land side development	Construction of a new runway (fourth runway) and adjustment of terminal capacity in line with passenger growth forecasts	Evaluation of the new Sustainable Development Plan until 2046 submitted by the concession-holding company, in light of the results of the EIA conducted on the previous Masterplan
2	New runway at Catania airport	Construction of a runway to accommodate medium- to long-haul aircraft and interventions to allow railway line to run underground	Integration of the railway and runway extension projects
3	Florence Airport Development *airside and landside*	New runway with a different layout to overcome current operational limits and improve environmental performance. New passenger terminal	Optimisation of the operational and environmental performance of the new runway and update of the design.

III.6 RAPID MASS TRANSIT SYSTEMS IN METROPOLITAN CITIES

The upgrading and development of an integrated Mass Rapid Transit (MRT) system is still the strategic mobility priority for Italian large metropolitan areas. As of 2018, in line with the 'Guidelines for the evaluation of Public Works' issued by Ministerial Decree No. 300 of 2017, the Ministry has established a standardised evaluation procedure for access to MRT funding, published periodically on the institutional website in the form of a '**Notice for the financing of MRT interventions**', with a detailed definition of the rules to be complied with and the tables to be filled in for the preparation of the project documents. Once the presence of the intervention is in the Sustainable Urban Mobility Plan has been verified, the projects are subjected to a multi-criteria analysis (prior evaluation) on the basis of the pre-established criteria: in addition to design quality, the evaluation takes into account socio-economic and environmental feasibility of the asset (to be proven by the proposing party by applying the analysis methodology proposed and using the appropriate tables, so as to allow a homogeneous comparison), as well as the project's maturity, the technical-administrative feasibility of the work, its economic adequacy, its intrinsic benefits for the transport system, and its financial and management sustainability. Projects eligible for financing are then included in a ranking list for the distribution of the allocated resources, which are awarded by ministerial decree upon agreement to be reached at the Unified Conference; every year the expenditure item dedicated to the MRTs of the Investment Fund is refinanced, to allow for the implementation of the projects.

On 15 January 2021, the deadline for submitting funding applications for the development of the MRT of the second Notice issued by the MIMS expired. The eligible projects were financed through resources from the Next Generation EU, falling under the **PNRR (Component M2C2 of mission M2** - total resources amounting to EUR 3,600 million, of which EUR 1,400 million are to cover projects already financed by existing legislation, while EUR 2,200 million represent new resources), and through dedicated national resources from the Budget Laws. In addition, paragraph 393 of the recent 2022 Budget Law (Law No. 234 of 30 December 2021), established a special **financing fund for the extension of the metro network of** the five cities in which this MRT develops, i.e., Milan, Turin, Genoa, Rome and Naples, for a total of EUR 3.7 billion in the short-to-medium term, allocated by Ministerial Decree.

For each of the 14 metropolitan cities, the tables below show the 2022 updates of the current priority MRT interventions, with the related cost, the available funding (from both state and local sources) and the resources to be collected. This includes the interventions financed by the aforementioned paragraph 393 'to promote a sustainable urban mobility, also through the extension of the metro network and rapid mass transit, in Genoa, Milan, Naples, Rome and Turin', in addition to the additional resources, amounting to EUR 1 billion, financed under section II of the same Law.

As mentioned, the increases due to the unprecedented upsurge in the prices of some of the most significant building materials are excluded.

Within the MRT of the metropolitan cities, a very important role is also played by the **urban and suburban railways** of the networks belonging to RFI and other operators (railways formerly granted under concession by the State) which complement the overall framework and whose investments are shown in the Tables.

1	BARI - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC funding	PNRR		Other Financing	Residual financing gap
						Existing projects	New Projects		
1	Refurbishment and improvement of the vehicle fleet								
2	Upgrading and enhancement of existing MRT lines	FNB: SCMT (*train control system*) ground equipment; remodelling of PBA (*automatic block signalling*) distances; removal of the Train Stop system and equipping with SCMT system of the existing double track Fesca San Girolamo - Cecilia section of the Bari-Lamasinata-Quartiere San Paolo railway line.	2.67	2.67					0.00
		FNB: Construction of the SCMT Encoder ground subsystem (SST) - Barletta-Andria section;	8.08	8.08					0.00
		FNB: further safety interventions on the FBN railway line	18.19	18.19					0.00
		FSE: setup of SCMT system	145.06	145.06				-	0.00
		FSE: Automation of Standard Level Crossings and Technological Upgrade of Automatic Level Crossing Equipment	61.04	61.04				-	0.00
		FSE: Railway infrastructure upgrading on the Bari - Taranto line	166.50	156.50				10.00	0.00
		Ferrovie Appulo lucane - SCMT – safety interventions	21.89	21.89					0.00
		FNB: Major Project, completion of the railway upgrade in the North area of Bari	145.52	50.00				95.52	0.00
		Torricella Station - *Ferrovie Nord Barese*	3.30	3.30					0.00
		Rail-road interchange terminal on Via Cifarelli - Ferrovie Appulo Lucane	3.20	3.20					0.00
		Libertà Station (*Ferrovie Appulo Lucane*) and track-doubling at Bari Nord station	18.00	18.00					0.00
		Villaggio dei Lavoratori Station (*Ferrovie Appulo Lucane*)	5.61	5.61					0.00
		Park and ride facility at Lamasinata station	1.50	1.50					0.00
		Completion of the Lamasinata intermodal terminal: completion of the rail-road interchange terminal (Lot III)	10.00	7.06				2.94	0.00

1	BARI - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
2	Upgrade and enhancement of existing MRT lines	Elimination of LC at Km 16+524 to Bari and construction of new roads and retrofitting of existing roads	10.00	7.00				3.00	0.00
		FAL: Reorganisation of the northern section of the rail surface of the FAL railway depot at Bari Scalo and RETROFITTING OF THE BARI CENTRALE - BARI SCALO at KM 0+000 ÷ 1+809 (Bari - Matera line)	5.52	5.52					0.00
		FAL: RFI: Bari-Bitritto line: infrastructure upgrade	40.11				40.11		0.00
		FAL: Construction of a station at km 7+300 at the Murgia Hospital	2.80	2.80					0.00
3	Completion of running MRT lines	Interventions along the Bari Southeast railway link road	10.00	10.00					0.00
4	Extension of the MRT network	FM1 line extension from Cecilia station to the new Regioni station	36.00	36.00					0.00
		Bari BRT	159.17				159.17		0.00
		TOTAL	**874.16**	**563.42**	**0.00**	**0.00**	**199.28**	**111.46**	**0.00**

2	BOLOGNA - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Refurbishment and improvement of the vehicle fleet	Refurbishment of rolling stock for the Metropolitan Railway System: Acquisition of 7 ETR 350 electric trains and 19 FLIRT rolling stock	165.90	41.50				124.40	0.00
2	Upgrade and enhancement of existing MRT lines	Railway line with metropolitan service Bologna - Portomaggiore: elimination of interference with the road network in the urban section of Bologna (by providing for part of the railway route to run underground)	46.43	46.43					0.00
3	Completion of MRT lines	Construction of the stops of the metropolitan railway service in the municipality of Bologna and implementation of the project for the distinctiveness of the metropolitan railway	49.32	49.32					0.00
4	Extension of the MRT network	First tramway line (Red Line) in Bologna	511.32	358.62		151.02		1.68	0.00
		Second tramway line (northern section - Corticella-Castel Maggiore route) in Bologna	222.14				222.14		0.00
5	Safety interventions on existing MRT lines	Bologna-Portomaggiore railway line - Adjustment of signalling installations and level crossings, implementation of scmt, charges (s.a.d.), implementation of Computerised Central Equipment (ACC-ACCM)	14.50	14.50					0.00
		TOTAL	**1009.61**	**510.37**	**0.00**	**151.02**	**222.14**	**126.08**	**0.00**

3	CAGLIARI - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Refurbishment and improvement of the vehicle fleet	Purchase of new tram rolling stock	9.00					9.00	0.00
2	Upgrade and enhancement of existing MRT lines	Doubling of the Caracalla - L. Gennari section of the tramway line, completion and adjustment of stops, stations, trackside signalling network of all existing lines and CRM	8.50					8.50	0.00
		SCMT of the Cagliari - Isili and Macomer - Nuoro railway line and level crossing retrofitting along the entire railway network	19.60	19.60					0.00
3	Completion of MRT lines								0.00
4	Extension of the MRT network	Tramway Line 3: construction of the Repubblica - Bonaria - Matteotti tramway line and acquisition of 3 trams and road compatibility interventions	31.80	15.30				16.50	0.00
		Construction of the Quartu Sant'Elena tram line and purchase of 4 trams	129.91	129.91					0.00
		Construction of the Bonaria-Poetto tram line	44.18	30.60					13.58
		TOTAL	**242.99**	**195.41**	**0.00**	**0.00**	**0.00**	**34.00**	**13.58**

4	CATANIA - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Refurbishment and improvement of the vehicle fleet	Supply of 54 motive power units for sections in operation and under construction of the railway system with metropolitan service	219.78	59.50				42.00	118.28
		Purchase of diesel, electric and hydrogen rolling stock	83.78	69.97				13.81	0.00
		Circumetnea railway: underground section - Supply/Revamping of rolling stock	9.99	9.99					0.00
2	Upgrade and enhancement of existing MRT lines	FCE Catania Borgo - Riposto section: implementation of safety and signalling systems and first level ERTMS/ETCS train control system, of a Central Computerised Central Equipment (ACCM) system integrated with an Axle Counter (BCA) system, adaptation of traditional level crossings to UNI 11117 standard and construction of new FCE level crossing Stesicoro - Misterbianco Centro section: Implementation of safety and signalling systems	79.47	60.00	19.47				0.00
		Upgrading of the Catania Borgo railway workshop in compliance with Presidential Decree No. 151/2011 - Replacement of 11 steelwork railway bridges in the Randazzo-Riposto surface section - (Misterbianco Paternò section) Narrow-gauge track retrofitting	17.00	17.00					0.00
		Smoke detection and extraction system (Jetfan and fans in the A.E.) of the Adrano and Santa Maria di Licodia tunnels of the Circumetnea railway)	2.00		2.00				0.00
		Adjustment of the road system with the elimination of 40 vehicular and 7 pedestrian level crossings on the Adrano - Randazzo - Riposto section of the Circumetnea railway	60.50		60.50				0.00
3	Completion of MRT lines	Circumetnea railway, completion of works on Nesima - Monte Po' section	100.00					100.00	0.00
		Circumetnea railway, completion of works in progress (civil works) Stesicoro - Palestro section	90.00	90.00					0.00
4	Extension of the MRT network	Circumetnea railway. Underground section - extension of the line from Monte Po' to Paternò and construction of the depot	581.07	40.00		115.00	317.07	84.00	25.00
		Circumetnea railway. Underground section - line extension from Stesicoro to Aeroporto	402.00					402.00	0.00
		TOTAL	**1645.59**	**346.46**	**81.97**	**115.00**	**317.07**	**641.81**	**143.28**

5	FLORENCE - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Refurbishment and improvement of the vehicle fleet								
2	Upgrade and enhancement of existing MRT lines								
3	Completion of MRT lines	Tram Line 2 - Lot 2 VACS	56.77	28.56				47.55	0.00
4	Extension of the MRT network	Line 2.2 Tram - Peretola - Sesto Fiorentino section	232.38	29.90					202.48
		Line 3 (lot II) - Libertà - Bagno a Ripoli section (3.2.1)'	315.94	60.62		150		105.32	0.00
		Line 3 (Lot II) - Libertà - Rovezzano section (3.2.2)'	259.28	249.28				10	0.00
		Line 4.1 - Leopolda - Piagge section	166.00	166.00					0.00
		Line 4.2 - Le Piagge - Campi Bisenzio section	222.49				222.49		0.00
		Tramway system connecting Pistoiese - Osmannoro – Technical and economic feasibility project	to be quantified						
		TOTAL	**1252.86**	**534.36**	**0.00**	**150.00**	**222.49**	**162.87**	**202.48**

6	GENOA - CITY PROGRAMME

Id	Category	Description of interventions	Cost of intervention	State funding	PNC funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Refurbishment and improvement of the vehicle fleet	Supply of new rolling stock for third-generation metro system (14 vehicles)	70.00	70.00					0.00
2	Upgrade and enhancement of existing MRT lines	Genoa-Caselle line - Principe Granarolo - SCMT - maintenance	18.04	18.04					0.00
		Genoa-Caselle line - Resolution of hydrogeological instability through safety interventions, infrastructure interventions, landslide risk monitoring system, railway retrofitting interventions, railway and on-board video surveillance systems, revamping of carriages	34.00	34.00					0.00
		Principe Granarolo line - Principe - Bari line renovation, line video surveillance system, purchase of new car	7.60	7.60					0.00
3	Completion of MRT lines	Corvetto through station- To be completed with civil finishes and station facilities.	43.90				43.90		0.00
4	Extension of the MRT network	Extension of the metro line from Brin to Canepari	85.14	85.14					0.00
		Extension of the metro line from Brignole to Martinez	18.10	18.10					0.00
		Assi di forza system	471.65	297.92		173.73			0.00
		Skymetro Val Bisagno	398.00	398.00					0.00
		Extension of the metro line to Rivarolo and completion of the Martinez/Terralba station	74.52						74.52
		Connecting system on the V Axis Valpolcevera - Technical and Economic feasibility project	to be quantified						
		Airport - Erzelli technology park connection system - Project Review in progress	to be quantified						
		TOTAL	**1220.95**	**928.80**	**0.00**	**173.73**	**43.90**	**0.00**	**74.52**

7	MESSINA - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Refurbishment and improvement of the vehicle fleet	Maintenance and improvement of the tram fleet	6.79	6.79					0.00
2	Upgrade and enhancement of existing MRT lines	Tram line restoration and maintenance works	4.45	4.45					0.00
3	Completion of MRT lines								
4	Extension of the MRT network								
		TOTAL	11.24	11.24	0.00	0.00	0.00	0.00	0.00

8	MILAN - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC Funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Renewal and improvement of the vehicle fleet	Replacement of two-way rolling stock for the tramway - Supply of 50 new trams	150.00	90.00				60.00	0.00
		Supply of 14 two-way trams (serving Line 7)	52.36				52.36		0.00
		Metro line M1: The train fleet renewal: purchase of 21 new 106-metre, 6-car rolling stock	207.90	207.90					0.00
		Trolleybus fleet renewal: purchase of 80 trolleybuses, of which 30 already contracted, 50 to be contracted with state resources	67.67	42.30				25.37	0.00
		Purchase of 10 new trolleybuses	8.80				8.80		0.00
		Purchase of 30 trams	90.00						90.00
2	Upgrade and enhancement of existing MRT lines	Replacement of M2 line signalling equipment	166.65	134.00				32.65	0.00
		M2 line: planning technological upgrading to increase train frequency	2.50	2.50					0.00
		First fire prevention system retrofitting as per MD 21.10.2015	72.93	46.99				25.94	0.00
		M1 + M2 metro lines - fire prevention system retrofitting in compliance with MD 21.10.2015 PHASE II	45.00						45.00
		M3 metro line: fire prevention system retrofitting in compliance with MD 21.10.2015	25.00					4.10	20.90
		Trolleybus route: preferential lane in protected area from Piazza Cappelli to Via Tertulliano	14.70	8.82				5.88	0.00
		Trolleybus route: preferential lane in protected area Pergolesi - Piccinini section	6.65	4.00				2.65	0.00
		Transport plan, line 90-91 - reserved route from Piazza Zavattari to Piazza Stuparich	17.50				9.00	8.50	0.00
		Transport plan, line 90-91 - reserved route from Piazza Stuparich to Piazza Lugano	45.00						45.00

8	MILAN - CITY PROGRAMME							
Id	**Category**	**Description of interventions**	**Cost of intervention**	**State funding**	**PNC Funding**	**PNRR**	**Other Funding**	**Residual financing gap**
2	Renewal and improvement of the vehicle fleet	M3 metro line: - renewal of signalling system - upgrading/modernisation of train fleet with purchase of 25 new 106-metre, 6-car rolling stock	352.14	352.14				0.00
		Expansion of the Gallaratese train depot on metro line 1	122.20	122.20				0.00
		New tram depot - Forlanini	70.00					70.00
		Ferrovie Nord Milano - Milan Branch Line - Installation of a Temperature Detection System (hot boxes at Novate Milanese and Bovisio Masciago facilities)	1.22	1.22				0.00
		Safety interventions – replacement of central electrically controlled shunting systems (ACEI) with a computerised central equipment (ACC-M) along the Milan branch	59.40		59.40			0.00
3	Completion of MRT lines	M1 Metro Line extension of the Sesto FS - Monza Bettola section	229.20	149.90			79.30	0.00
		M4 Metro Line - Lorenteggio - Linate section	2043.44	1061.73			981.71	0.00
		Milan - Seregno metro line	232.99	128.53			104.46	0.00
4	Extension of the MRT network	Milan - Limbiate metro line - first functional lot, Milan Comasina - Varedo depot	98.00	67.84			30.16	0.00
		Milan - Limbiate metro line - second functional lot	55.00	40.00			15.00	0.00
		M5 metro line extension to Monza -	1265.00	900.00			365.00	0.00
		M1 metro line extension Baggio - Olmi - Valsesia district	398.00	390.00			8.00	0.00
		North district tramway - functional section Niguarda-Cascina Gobba	50.31			50.31		0.00
		Tramway 7 Bausan - Villapizzone	36.00			36.00		0.00
		Tramway 7 Niguarda - Durando; Bovisa - Certosa	105.00					105.00
		M4 metro line extension from Linate airport to Segrate	420.00	420.00				0.00
		New M6 metro line, south branch - Technical and economic feasibility project in progress	to be quantified					
		M3 line extension San Donato M. - Asta Paullese - Technical and economic feasibility project in progress	to be quantified					
		M5 line extension to Settimo Milanese - Technical and economic feasibility project in progress	to be quantified					
		TOTAL	**6510.56**	**4170.07**	**59.40**	**0.00**	**156.47**	**1748.72**	**375.90**

9	NAPLES - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC Financing	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Renewal and improvement of the vehicle fleet	Naples metro - purchase of rolling stock	193.00	20.00				173.00	0.00
		EAV – TPL (*Local Transport Service*) TRAINS RENEWAL - metro line, Vesuvius railway (*Circumvesuviana*), Circumflegrea railway	176.20		176.20				0.00
		Completion of line 1 rolling stock fleet: supply of 4 electric trains	41.50				41.50		0.00
		Completion of line 6 rolling stock fleet: supply of 3 electric trains	30.00				30.00		0.00
		Supply of five 24-metre, 3-element, low-floor trams	15.50				15.50		0.00
		New connection between Afragola and the Naples metro network - Purchase of rolling stock	37.00	37.00					0.00
2	Upgrade and enhancement of existing MRT lines	Naples–Aversa railway (*Rainbow Line*) – upgrade of the Piscinola - Aversa centro section - depot	562.95	323.06				185.89	54.00
		Regional Metro System-North East Metro-Campania Railway-Technological Works	35.76	35.62				0.14	0.00
		Upgrade and enhancement of the former Circumvesuviana FSM line	484.16	401.51				81.65	1.00
		Napoli Garibaldi Complex Node - DESIGN	4.50	4.50					0.00
		Upgrade and enhancement of the former Circumflegrea FSM line: completion and static renovation of the old Camaldoli tunnel	26.40	12.35				14.05	0.00
		Equipment of isolated lines with an advanced CCS (control-command and signalling) subsystem - Cumana and Circumflegrea	29.93	9.26				20.67	0.00
		Circumvesuvianea circumflegrea - Vesuvius and Phlegraean lines - SCMT - SSB equipment including GSM-R radio CAB, GSM-R coverage intervention, fibre optics and wifi	80.50	80.50					0.00
		Santa M. Capua Vetere - Piedimonte Matese and Ferrovia Napoli- Benevento- Cancello - SCMT - SST equipment with simultaneous upgrading of ACEI – level crossing facilities	46.63	46.63					0.00
		Construction of a new overhead line PM-SMCV - SMCV-Capua section with elimination of 7 LCs	30.00	30.00					0.00

9	NAPLES - CITY PROGRAMME								
Id	**Category**	**Description of interventions**	**Cost of intervention**	**State funding**	**PNC Funding**	**PNRR**		**Other Funding**	**Residual financing gap**
2	Upgrade and enhancement of existing MRT lines	TECHNOLOGICAL DEVELOPMENT of Technological infrastructure and equipment for the complete digitisation of command and control of installations and traffic: Intelligent Traffic system (Entire EAV Network)	120.00	120.00					0.00
		Suburban line - TECHNOLOGICAL DEVELOPMENT Adjustment of tunnel safety standards to current structural and fire prevention regulations	20.00	20.00					0.00
		Upgrade and modernisation of the Cancello - Benevento line	109.00			109.00			0.00
		Circumflegrea- New remote control Circumflegra railway with supply of three electrical substations and upgrade of ET tunnels	30.00	30.00					0.00
		Construction of Piscinola Di Vittorio depot-workshop EAV Aversa Piscinola metro line – PHASE I	145.41				145.41		0.00
		Technological functional modernisation of metro line 1 and improvement of safety and comfort standards	54.65	27.32				27.33	0.00
		Renewal and improvement of the Montedonzelli-Piscinola section	7.50				7.50		0.00
		Tram network upgrade	51.20				51.20		0.00
		Project for the modernisation of the trolleybus network, facilities and services in the province of Naples with integration into the urban trolleybus network in Naples	14.64				14.64		0.00
3	Completion of MRT lines	Line 1: Dante-Garibaldi-Centro Direzionale section	1787.00	939.80				847.20	0.00
		Line 1: Centro Direzionale-Capodichino section	643.00	163.00				480.00	0.00
		Line 1: railway completion: Di Vittorio - Capodichino section	42.50	42.50					0.00
		Line 1: Extension of the Piscinola depot-workshop – PHASE I	14.60	11.46				3.14	0.00

9	NAPLES - CITY PROGRAMME								
Id	**Category**	**Description of interventions**	**Cost of intervention**	**State funding**	**PNC Funding**	**PNRR**		**Other Funding**	**Residual financing gap**
3	Completion of running MRT lines	Expansion of vehicle depot and maintenance workshop on Line 1 - Piscinola (Lot 2)	41.76				41.76		0.00
		MCNE: Piscinola-Secondigliano-Capodichino section (approx. 3.6 km)	410.21	320.12				90.09	0.00
		Line 6: Mostra-Municipio section	790.00	303.90				486.10	0.00
		Line 6: Mostra - Arsenale – Arsenale Depot-Workshop - Phase I	220.00	220.00					0.00
		Line 6: Mostra - Arsenale - Arsenal Depot-Workshop – Phase II	50.00	38.00					12.00
		Line 7: Soccavo-Mostra link road between Cumana and Circumflegrea lines (approx. 3.30 km)(4)	351.74	351.74					0.00
4	Extension of the MRT network	New connection between the Afragola HS station and the Naples metro network. Lot 1_Section I	631.37	631.37					0.00
		New connection between the Afragola HS station and the Naples metro network. Lot 1_Section II	163.50	163.50					0.00
		New connection between Afragola and the Naples metro network - Lot 1 - Section IV	333.78	333.78					0.00
		New connection between Afragola and the Naples metro network - Lot 1 - sections II, III	663.06						663.06
		New connection between Afragola and the Naples metro network - Lot 2 Section F	447.32						447.32
		Circumflegrea railway - modernisation and renovation Quarto - Torregaveta and interchange facility with RFI	271.60						271.60
		New connection between Afragola and the Naples metro network - Lot 2 Stretches G, H	to be quantified						
		New tramway connection Aversa Centro - S. Maria Capua Vetere - Capua - Technical and economic feasibility project in progress	to be quantified						
		Line 7 - Rail link between the Cumana and Circumflegrea lines - Technical and economic feasibility project in progress	to be quantified						
TOTAL			**9207.87**	**4716.92**	**176.20**	**109.00**	**347.51**	**2409.26**	**1448.98**

10	PALERMO - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC Funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Renewal and improvement of the vehicle fleet								
2	Upgrade and enhancement of existing MRT lines	Completion of the railway system with Metro service	277.10	203.08				74.02	0.00
3	Completion of MRT lines								
4	Extension of the MRT network	Palermo Tram System - Phase I - Routes A, B and C	275.00					275.00	0.00
		Palermo Tram System - Phase II - Routes D, E2, F, G and park and ride facilities	504.41			481.27	23.14		0.00
TOTAL			**1056.51**	**203.08**	**0.00**	**481.27**	**23.14**	**349.02**	**0.00**

11	REGGIO CALABRIA - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC Funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Renewal and improvement of the vehicle fleet								
2	Upgrade and enhancement of existing MRT lines	Metropolitan Railway System - Reggio Calabria Centrale - Melito P.S. section: construction of 3 stations and technological upgrade	23.00	23.00					0.00
3	Completion of MRT lines								
4	Extension of the MRT network								
TOTAL			23.00	23.00	0.00	0.00	0.00	0.00	0.00

12	ROME - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC Funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Renewal and improvement of the vehicle fleet	Supply of new rolling stock (5 trains for metro A and 12 trains for metro B)	163.20	134.40					28.80
		Extraordinary maintenance for metro A and B rolling stock	72.22	66.00				6.22	0.00
		Metro C - increase in rolling stock (4 trains)	36.40	36.40					0.00
		Acquisition of new rolling stock for the tram network in Rome	158.97	158.97					0.00
		Purchase of new trains (16 to be used for public transport service on the former regional railways Roma-Lido di Ostia and Roma-Viterbo and 3 additional trains for the same lines)	212.00	59.00	153.00				0.00
		Renewal of rolling stock on metro lines A and B-B1	159.47	159.47					0.00
2	Upgrade and enhancement of existing MRT lines	Underground extraordinary maintenance: Implementation of the extraordinary maintenance plan metro A, B-B1 and adjustments as per MD of 21 October 15 - innovation and automation minimum interventions	279.37	225.12					54.25
		Centocelle East Depot	11.28	11.28					0.00
		Extraordinary maintenance of the Roma Lido railway with conversion into an underground railway and maintenance of the Roma Viterbo railway (Riano - Morlupo section), with technological upgrading	478.97	478.97					0.00
		Interventions on the Rome-Giardinetti railway	3.00	3.00					0.00
		Extraordinary maintenance of former regional railways	24.00	24.00					0.00
3	Completion of MRT lines	Metro C: construction of section T3 up to Venice with an increase in rolling stock	1556.28	1318.68				237.6	0.00

12	ROME - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC Funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
4	Extension of the MRT network	Eur Magliana Mb - Villa Bonelli Fs (FL1) cable car (Magliana cable car)	29.95	29.95					0.00
		Battistini - Torrevecchia - Casalotti G.R.A. cable car (Casalotti cable car)	109.59	109.59					0.00
		Via Tiburtina tramway (p.le Verano - p.le Tiburtina station)	23.45	23.45					0.00
		Viale Palmiro Togliatti tram line (Togliatti tram line)	184.26	84.26		100.00			0.00
		Termini - Giardinetti - Tor Vergata line (tram line) - Ordinary gauge solution	213.82	213.82					0.00
		Termini-Vatican-Aurelio tram line	293.18	173.18			120.00		0.00
		Metro Line C - section T2	2200.00	990					1210.00
		Metro Line B - extension beyond Rebibbia - under project review	to be quantified						
		Metro Line A - extension beyond Battistini - under technical and economic feasibility project	to be quantified						
TOTAL			**6209.41**	**4299.54**	**153.00**	**100.00**	**120.00**	**243.82**	**1293.05**

13	TURIN - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding	PNC Funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Renewal and improvement of the vehicle fleet	Purchase of rolling stock (4 trains) for the metro line in operation and for future extension (Lingotto - Bengasi section)	28.60	28.60					0.00
		Purchase of rolling stock (8 trains) for metro line in operation and for future extension (Collegno-Cascine Vica section)	56.90	56.90					0.00
		Tram network: supply of new trams	175.00	175.00					0.00
2	Upgrade and enhancement of existing MRT lines	Public underground car park piazza Bengasi - park and ride Piazza Bengasi (metro interchange)	20.00	14.52				5.48	0.00
		Line 10/: connection to Corso Giulio Cesare along Via Cecchi and Corso Emilia (with a junction to the GTT Porta Milano district) (tram line)	13.66	8.53					5.13
		Line 3 - construction of the terminus in Corso Quintino Sella and the railway loop in Largo Toselli (tram line)	3.73	3.73					0.00
		Turin automatic metro - Line 1: west extension Collegno - Cascine Vica: new train depot facility	35.09	35.09					0.00
3	Completion of MRT lines	Rebaudengo - railway loop interconnection	184.37	24.37				160.00	0.00
		Metro Line Extension Lingotto - Benghazi	193.60	140.04				53.56	0.00
		Retrofitting of the entire Canavesana line	11.89	11.89					0.00
		Torino Ceres - Train control System - entire line	18.88	15.78				3.10	0.00
		Torino Ceres line - further safety interventions (technological upgrade, adjustment of tunnels to fire-prevention decree, replacement of shunting boxes, implementation of GSM-R network, modification of signalling systems along the line, elimination and modification of level crossings)	47.50	47.50					0.00
		Canavesana Line - Upgrading and modernisation of the entire network	140.90				140.90		0.00
		Metro - Line 1: Extension of the workshop	7.44	7.44					0.00

13	TURIN - CITY PROGRAMME								
Id	Category	Description of interventions	Cost of intervention	State funding defined	PNC Financing	PNRR		Other Financing	Residual financing gap
4	Extension of the MRT network	Metro line extension - Collegno-Cascine Vica section	271.84	271.84					0.00
		Metro Line 2: first section	1828.00	1828.00					0.00
		Extension of tram line 12 to Allianz Stadium and recovery of the Turin-Ceres railway trench	221.72						221.72
		Construction of a tram stop 15 at martini hospital and change of routing in the city centre	9.41	9.41					0.00
		Metro Line 1 - Cascine Vica - Rivoli Centro extension – Under project review	to be quantified						
		TOTAL	**3268.53**	**2678.64**	**0.00**	**0.00**	**140.90**	**222.14**	**226.85**

	14	VENICE - CITY PROGRAMME							
Id	Category	Description of interventions	Cost of intervention	State funding	PNC Funding	PNRR		Other Funding	Residual financing gap
						Existing projects	New Projects		
1	Renewal and improvement of the vehicle fleet	Adria Mestre line - Purchase of 4 electric trainsets	21.67		21.67				0.00
2	Upgrade and enhancement of existing MRT lines	Adria - Mestre Line - Implementation SCMT-RTB-PAI.PL	3.02	3.02					0.00
		Adria - Mestre line - electrification	22.00	22.00					0.00
		Adria - Mestre line - Further safety interventions (axle counter, reinforced concrete bridge retrofitting)	1.69	1.69					0.00
3	Completion of MRT lines								
4	Extension of the MRT network								
		TOTAL	**48.38**	**26.71**	**21.67**	**0.00**	**0.00**	**0.00**	**0.00**

III.7 NATIONAL CYCLE ROUTES

Article 1, paragraph 640, of Italian Law No. 208 of 28 December 2015, provided for the design and implementation of a national system of tourist cycle routes, with priority for the following routes: Verona-Florence (Sun Cycle Route), Venice-Turin (VENTO Cycle Route), from Caposele (AV) to Santa Maria di Leuca (LE) through Campania Basilicata and Puglia (Ciclovia dell'acquedotto pugliese), *Grande raccordo anulare delle biciclette* (GRAB) of Rome, Ciclovia del Garda, Ciclovia Trieste - Lignano Sabbiadoro - Venezia, Ciclovia Sardegna, Ciclovia Magna Grecia (Basilicata, Calabria, Sicilia), Ciclovia Tirrenica and Ciclovia Adriatica. **By Ministerial Decree No. 517 of 29 November 2018, EUR 16.62 million have already been** allocated for **each of the national cycle routes, with** the exception of the GRAB cycle route for which EUR 14.88 million have been allocated, an amount sufficient to fully finance the work. Within the framework of the PNRR, Mission 2, Component M2C2, **with Ministerial Decree No. 4 of 12 January 2022, additional EUR 400 million were allocated, of which EUR 150 million as government funding under current legislation, granted to the Regions and the Autonomous Province of Trento.**

The following table shows, for each cycle route, the information on:

- the approval process for technical and economic feasibility projects;
- the estimated costs for the interventions, the resources already allocated and distributed pursuant to Ministerial Decree No. 517/2018 and the PNRR, the additional resources provided for in Ministerial Decree No. 4/2022, and the residual financing gap.

The additional resources, not yet allocated, provided for by Italian Law No. 205 of 2017, Art. 1, paragraph 1072, and by Italian Law No. 145 of 2018, Art.1, paragraph 95, are not reported. Conversely, in the preamble to Ministerial Decree No. 4 of 12 January 2022, EUR 68.5 million have already been provided, to be distributed upon preliminary assessment of the project documentation, for the Regions of Campania, Umbria, Valle d'Aosta and the Autonomous Province of Bolzano for the financing of cycleways in their respective territories.

TABLE III.7.1: PRIORITY CYCLE ROUTES INTERVENTIONS					
	Estimated cost* (EUR million)	Resources allocated by MD No. 517/2018 (EUR million)	Resources on PNRR MD . 4/2022 (EUR million)	Additional resources MD No. . 4/2022 (EUR million)	Residual financing gap* (EUR million)
Tyrrhenian Cycle Route	660.13	16.62	44.50		599.01
Adriatic Cycle Route	282.24	16.62	74.00	27.50	164.12
- Project Review of the coastal stretch Lesina - Manfredonia -					
VEN-TO Cycle Path	195.40	16.62	51.00		127.78
Sun Cycle Route	38.08	16.62	22.50		-
Sardinia Cycle Route	340.00	16.62	33.00		290.38
Pugliese Aqueduct Cycleway	97.38	16.62	39.50		41.26
Magna Graecia Cycle Route	520.72	16.62	61.50		442.60
Garda Cycle Route	344.35	16.62	30.00		297.73
GRAB Cycle Route	14.88	14.88			-
Trieste - Lignano Sabbiadoro – Venice Cycle Route	105.90	16.62	30.00		59.28
TOTAL	**2,599.08**	**164.46**	**386.00**	**27.50**	**2,022.16**
* cost to be updated on the basis of the progress of project activities and the Project Review of the Adriatic cycle route.					

III.8 SUSTAINABLE PUBLIC HOUSING INFRASTRUCTURE

PINQUA - ORDINARY PROPOSALS

Within the framework of the PINQUA, described in the previous chapter, Annex 1 of the Directorial Decree 804 of 20 January 2022 (by which the High Commission definitively declared the approved and adjusted interventions as eligible to financing) shows the list of 151 ordinary interventions, according to the score obtained, with the amount financed, on the basis of the adjustment approved. Interventions and funding are shown in the table below.

TABLE III.8.1: PINQUA, ORDINARY PROJECTS

Rank Pos.	Proposing Body/ Beneficiary Body	Eligible Funding	Rank. Pos.	Proposing Body / Beneficiary Body	Eligible Funding
1	Municipality of Caserta	14,525,359.85 €	77	Municipality of Cuneo	11,100,000.50 €
2	Municipality of Foggia	15,000,000.00 €	78	Municipality of Sondrio	15,000,000.00 €
3	Municipality of Piacenza	11,000,000.00 €	79	Metropolitan City of Rome	14,794,316.60 €
4	Municipality of Latina	15,000,000.00 €	80	Municipality of Perugia	14,848,772.71 €
5	Municipality of Cuneo	15,000,000.00 €	81	Municipality of Pisa	14,997,999.00 €
6	Abruzzo Region	15,000,000.00 €	82	Metropolitan City of Milan	15,000,000.00 €
7	Sicily Region	12,392,367.94 €	83	Veneto Region	15,000,000.00 €
8	Liguria Region	14,842,200.00 €	84	Tuscany Region	14,943,109.22 €
9	Municipality of Treviso	15,000,000.00 €	85	Municipality of Milan	15,000,000.00 €
10	Umbria Region	15,000,000.00 €	86	Municipality of Viterbo	15,000,000.00 €
11	Metropolitan City of Milan	14,999,505.00 €	87	Municipality of Varese	14,674,132.65 €
12	Marche Region	14,834,459.71 €	88	Umbria Region	13,998,874.21 €
13	Municipality of Reggio Calabria	15,000,000.00 €	89	Municipality of Fermo	15,000,000.00 €
14	Tuscany Region	14,928,392.00 €	90	Municipality of Rome	15,000,000.00 €
15	Molise Region	15,000,000.00 €	91	Municipality of Milan	15,000,000.00 €
16	Municipality of Sassari	14,784,846.98 €	92	Municipality of Perugia	15,000,000.00 €
17	Municipality of Pordenone	15,000,000.00 €	93	Metropolitan City of Bologna	14,955,053.09 €
18	Municipality of Aosta	14,957,988.09 €	94	Municipality of Pesaro	14,883,256.00 €
19	Municipality of Potenza	15,000,000.00 €	95	Marche Region	14,924,152.00 €
20	Municipality of Trani	15,000,000.00 €	96	Municipality of Rome	11,000,000.00 €
21	Municipality of Trani	15,000,000.00 €	97	Municipality of Ascoli Piceno	14,952,550.00 €
22	Abruzzo Region	15,000,000.00 €	98	Municipality of Padua	15,000,000.00 €
23	Abruzzo Region	15,000,000.00 €	99	Metropolitan City of Turin	15,000,000.00 €
24	Metropolitan City of Bari	14,993,947.00 €	100	Municipality of Rome	14,000,000.00 €
25	Campania Region	15,000,000.00 €	101	Metropolitan City of Rome	14,765,162.80 €
26	Metropolitan City of Bari	14,939,922.54 €	102	Municipality of Parma	15,000,000.00 €
27	Municipality of Gela	14,996,205.63 €	103	Municipality of Bergamo	12,929,612.52 €
28	Apulia Region	15,000,000.00 €	104	Municipality of Genoa	15,000,000.00 €
29	Metropolitan City of Bari	14,983,142.98 €	105	Municipality of Genoa	15,000,000.00 €
30	Molise Region	15,000,000.00 €	106	Municipality of Busto Arsizio	15,000,000.00 €
31	Municipality of Taranto	15,000,000.00 €	107	Metropolitan City of Bologna	15,000,000.00 €
32	Campania Region	15,000,000.00 €	108	Municipality of Cesena	11,913,671.09 €
33	Campania Region	15,000,000.00 €	109	Metropolitan City of Venice	12,415,030.80 €
34	Molise Region	15,000,000.00 €	110	Lazio Region	14,605,927.56 €
35	Municipality of Gela	14,996,193.58 €	111	Municipality of Rieti	14,687,970.84 €
36	Municipality of Campobasso	15,000,000.00 €	112	Municipality of Latina	12,300,000.00 €
37	Municipality of Brindisi	14,599,600.00 €	113	Municipality of Udine	15,000,000.00 €
38	Municipality of Reggio Calabria	14,998,599.50 €	114	Municipality of Rovigo	14,999,705.90 €
39	Municipality of Reggio Calabria	14,998,599.50 €	115	Municipality of Grosseto	15,000,000.00 €

TABLE III.8.1: PINQUA, ORDINARY PROJECTS

Rank.	Proposing Body / Beneficiary	Eligible Funding	Rank.	Proposing Body /	Eligible Funding

Pos.	Body			Pos..	Beneficiary Body	
40	Municipality of Trapani	15,000,000.00 €		116	Lombardy Region	14,505,000.80 €
41	Municipality of Olbia	12,400,000.00 €		117	Municipality of Rieti	1,725,000.00 €
42	Municipality of Castellammare di Stabia	15,000,000.00 €		118	Municipality of Forlì	12,700,000.00 €
43	Municipality of Trapani	15,000,000.00 €		119	Municipality of Trieste	14,883,600.68 €
44	Municipality of L'Aquila	6,590,000.00 €		120	Municipality of Cremona	15,000,000.00 €
45	Municipality of Taranto	15,000,000.00 €		121	Metropolitan City of Florence	15,000,000.00 €
46	Municipality of Bari	15,000,000.00 €		122	Municipality of Massa	14,869,506.00 €
47	Apulia Region	15,000,000.00 €		123	Municipality of Pomezia	14,983,924.62 €
48	Municipality of Benevento	14,407,686.96 €		124	Municipality of Turin	15,000,000.00 €
49	Municipality of Altamura	13,637,011.00 €		125	Metropolitan City of Rome	14,920,400.00 €
50	Municipality of Afragola	15,000,000.00 €		126	Municipality of Novara	15,000,000.00 €
51	Municipality of Lecce	15,000,000.00 €		127	Municipality of Livorno	14,960,043.49 €
52	Municipality of Altamura	11,379,673.77 €		128	Tuscany Region	14,987,184.68 €
53	Municipality of Altamura	14,658,757.06 €		129	Municipality of Novara	15,000,000.00 €
54	Municipality of Andria	15,000,000.00 €		130	Municipality of Mantua	15,000,000.00 €
55	Municipality of Corigliano-Rossano	14,987,240.49 €		131	Metropolitan City of Bologna	14,964,576.00 €
56	Municipality of Bari	15,000,000.00 €		132	Municipality of Novara	8,500,000.00 €
57	Municipality of Messina	14,752,272.75 €		133	Veneto Region	11,830,000.00 €
58	Municipality of Catania	14,642,152.04 €		134	Municipality of Alexandria	14,520,000.00 €
59	Municipality of Chieti	15,000,000.00 €		135	Metropolitan City of Florence	15,000,000.00 €
60	Municipality of Andria	15,000,000.00 €		136	Metropolitan City of Turin	15,000,000.00 €
61	Municipality of Naples	15,000,000.00 €		137	Municipality of Ferrara	15,000,000.00 €
62	Municipality of Naples	15,000,000.00 €		138	Municipality of Carpi	14,822,854.20 €
63	Municipality of Andria	15,000,000.00 €		139	Municipality of Pisa	14,563,795.00 €
64	Municipality of Oristano	15,000,000.00 €		140	Municipality of Vercelli	11,000,000.00 €
65	Municipality of Messina	14,234,601.30 €		141	Municipality of Bergamo	7,728,036.80 €
66	Municipality of Corigliano-Rossano	14,566,337.07 €		142	Municipality of Turin	13,730,322.00 €
67	Municipality of Quartu Sant'Elena	14,343,341.92 €		143	Municipality of Reggio nell'Emilia	15,000,000.00 €
68	Municipality of Corigliano-Rossano	14,733,208.00 €		144	Municipality of Verona	15,000,000.00 €
69	Municipality of Imperia	14,975,559.00 €		145	Municipality of Piacenza	6,900,000.00 €
70	Municipality of Varese	14,996,538.00 €		146	Municipality of Macerata	14,994,436.11 €
71	Marche Region	15,000,000.00 €		147	Municipality of Pomezia	14,811,883.30 €
72	Liguria Region	14,999,985.83 €		148	Municipality of Turin	14,488,203.00 €
73	Municipality of Aprilia	14,904,605.32 €		149	Municipality of Verona	15,000,000.00 €
74	Municipality of Modena	14,327,727.30 €		150	Municipality of Pesaro	14,975,172.98 €
75	Liguria Region	14,986,096.00 €		151	Municipality of Livorno	12,944,405.26 €
76	Municipality of Monza	13,161,301.19 €				

The total funding amounts to EUR 2,161,453,067.71; the Directorial Decree also provides for the disbursement of an 10% advance of the eligible amount for

each of the PINQUA beneficiaries. The table also defines the so-called milestones related to the implementation of the PNRR. In this regard, the PINQUA project mainly stresses on two parameters: number of housing units, in terms of new construction and redevelopment; square metres of public spaces undergoing regeneration. The projects referred to in the ordinary proposals:

- build or redevelop a total of 14,606 housing units;
- act on a total area of 8,597,183 square metres of public space.

PILOT PROJECTS

Annex 2 to Ministerial Decree No. 383/2021 defines the ranking list and the admitted projects in the category of **High-Yield Pilot Projects**, which represent - in the objectives of the call - interventions of particular relevance, exemplifying an innovative and strategic approach with large-scale effects.

The Pilot Projects were not subject to adjustment, but to final approval at the meeting of the High Commission held on 21 December 2021, according to the list set forth in Directorial Decree No. 17524 of 29 December 2021. The relevant Annex A, reported in the table below, shows the eligible funding, the advance payable and the targets and milestones of the PNRR.

TABLE III.8.2: PINQUA, PILOT PROJECTS

Ranking position	Proposing Body	Object of the proposal	Eligible Funding	Number of housing units	Square metres of public space
1	Municipality of Messina	Redevelopment of the southern area for urban housing and service provision	99,607,907.24 €	388	30,440
2	Municipality of Brescia	Tintoretto - The power of tower: demolition and reconstruction of Tintoretto Tower	42,400,155.00 €	270	4,000
3	Municipality of Milan	Milan, *metropoli di quartieri*. Infrastructure for the promotion of habitability in the neighbourhoods of the public city	99,998,363.00 €	175	125,011
4	Municipality of Bari	Construction of a park in the building area and of the central station rail bond; redevelopment of the former Rossani barracks complex to be used as an integrated service centre for the neighbourhood - *casa della cittadinanza*	100,000,000 €	0	151,929
5	Municipality of Lamezia Terme	Lamezia Space-Generazione 2021	98,887,005.00 €	80	703,189
6	Municipality of Ascoli Piceno	15 interventions related to: social housing, international housing, public housing, multifunctional redevelopment and technological development	75,087,854.00 €	77	57,253
7	Municipality of Genoa	Caruggi, regeneration of the historic centre	87,000,000.00 €	287	101,386
8	Lombardy Region	Gratosoglio 2.0: sustainable strategies for a large public neighbourhood	52,326,675.00 €	657	42,253

The total funding amounts to EUR 655,307,959.24; the Directorial Decree also provides for an advance payment of 10% to the beneficiary body.

Pilot Projects:

- build or redevelop a total of 1,934 housing units;
- focus on a total area of 1,215,461 square metres of public space.

OTHER FUNDING FOR SUSTAINABLE PUBLIC HOUSING

1) 'SAFE, GREEN AND SOCIAL - PUBLIC HOUSING REDEVELOPMENT' PROGRAMME

Together with PINQUA, the MIMS pursues the qualitative objectives outlined through other Programmes geared towards the achievement of the objectives of innovation, regeneration and sustainability in public housing. These include, as described in the previous chapter, the Programme '*Safe, green and social: redevelopment of public housing*', ***financed by the National Plan Complementary to the PNRR***. The Prime Ministerial Decree of 15 September 2021, implementing Italian Decree-Law No. 59 of 6 May 2021, converted with amendments by Italian Law No. 101 of 1 July 2021:

- identifies indicators for the regional distribution of the EUR 2 billion of resources allocated for the redevelopment of public housing;
- sets the procedures and deadlines for the declaring interventions as eligible for financing;
- regulates the procedures for fund disbursement;
- allocates the available resources from 2021 to 2026 among the regions and autonomous provinces.

TABLE III.8.3: DATA FOR THE PERIOD 2021 - 2026

REGIONI	Coeff.	2021	2022	2023	2024	2025	2026	TOTALE
Piemonte	4,27	8.542.707,73	17.085.415,46	14.949.738,52	14.949.738,52	14.949.738,52	14.949.738,52	85.427.077,28
Valle d'Aosta	0,14	270.365,74	540.731,49	473.140,05	473.140,05	473.140,05	473.140,05	2.703.657,43
Lombardia	12,65	25.293.724,53	50.587.449,06	44.264.017,93	44.264.017,93	44.264.017,93	44.264.017,93	252.937.245,29
P.A Trento	0,80	1.591.441,44	3.182.882,87	2.785.022,51	2.785.022,51	2.785.022,51	2.785.022,51	15.914.414,37
P.A Bolzano	0,90	1.806.893,14	3.613.786,28	3.162.063,00	3.162.063,00	3.162.063,00	3.162.063,00	18.068.931,42
Veneto	4,99	9.970.572,73	19.941.145,47	17.448.502,28	17.448.502,28	17.448.502,28	17.448.502,28	99.705.727,33
Friuli V. Giulia	3,09	6.187.585,12	12.375.170,23	10.828.273,96	10.828.273,96	10.828.273,96	10.828.273,96	61.875.851,17
Liguria	1,77	3.534.190,96	7.068.381,91	6.184.834,17	6.184.834,17	6.184.834,17	6.184.834,17	35.341.909,56
Emilia Romagna	6,19	12.381.347,15	24.762.694,31	21.667.357,52	21.667.357,52	21.667.357,52	21.667.357,52	123.813.471,53
Toscana	4,67	9.346.635,36	18.693.270,72	16.356.611,88	16.356.611,88	16.356.611,88	16.356.611,88	93.466.353,62
Umbria	1,83	3.665.159,17	7.330.318,33	6.414.028,54	6.414.028,54	6.414.028,54	6.414.028,54	36.651.591,66
Marche	3,14	6.276.914,47	12.553.828,94	10.984.600,32	10.984.600,32	10.984.600,32	10.984.600,32	62.769.144,70
Lazio	12,01	24.016.959,11	48.033.918,22	42.029.678,44	42.029.678,44	42.029.678,44	42.029.678,44	240.169.591,09
Abruzzo	2,33	4.656.405,85	9.312.811,70	8.148.710,24	8.148.710,24	8.148.710,24	8.148.710,24	46.564.058,52
Molise	0,70	1.402.726,13	2.805.452,25	2.454770,72	2.454770,72	2.454770,72	2.454770,72	14.027.261,25
Campania	14,78	29.555.512,13	59.111.024,25	51.722.146,22	51.722.146,22	51.722.146,22	51.722.146,22	295.555.121,25
Puglia	5,63	11.266.084,41	22.532.168,82	19.715.647,72	19.715.647,72	19.715.647,72	19.715.647,72	112.660.844,10
Basilicata	1,30	2.608.801,26	5.217.602,52	4.565.402,21	4.565.402,21	4.565.402,21	4.565.402,21	26.088.012,60
Calabria	4,89	9.772.407,59	19.544.815,19	17.101.713,29	17.101.713,29	17.101.713,29	17.101.713,29	97.724.075,93
Sicilia	11,67	23.334.733,63	46.669.467,27	40.835.783,86	40.835.783,86	40.835.783,86	40.835.783,86	233.347.336,34
Sardegna	2,26	4.518.832,36	9.037.664,71	7.907.956,62	7.907.956,62	7.907.956,62	7.907.956,62	45.188.323,57
Totale	100,00	200.000.000,00	400.000.000,00	350.000.000,00	350.000.000,00	350.000.000,00	350.000.000,00	2.000.000.000,00

2) PRISON AND JUDICIAL FACILITIES

Within the implementation guidelines of the National Plan Complementary to the PNRR, EUR 132.90 million of resources have been earmarked **for the construction and improvement of pavilions and areas for adult and juvenile rehabilitation facilities.**

The Ministry of Justice, along with the Department of Prison Administration and the Department of Juvenile Justice, have identified specific interventions for the construction of eight new pavilions and the renovation and redevelopment of additional four areas.

TABLE III.8.5: PRISON FACILITIES SUBJECT TO CONSTRUCTION INTERVENTIONS	
Department of Prison Administration (Dipartimento Amministrazione Penitenziaria - DAP) INTERVENTIONS Construction of 8 new pavilions	EUR 84 million
Rovigo Prison	
Vigevano Prison	
Perugia Prison	
Civitavecchia Prison	
Viterbo Prison	
Santa Maria Capua Vetere Prison (Caserta);	
Reggio Calabria Arghillà Prison	
JUNEVINE PRISON Interventions Renovation and redevelopment	EUR 48.90 million
Turin 'Aporti' Juvenile Prison	
Bologna Juvenile Prison	
Rome 'Castel del Marmo' Juvenile Prison	
Airola Juvenile Prison (Benevento)	

In addition to the funding provided for in the Plan Complementary to the PNRR, EUR 310 million of 'major maintenance' are included in the 1.2 investment under the 'M2C3 - *Energy Efficiency and Renovation of Buildings*' component of the PNRR, to be used for the promotion of energy efficiency and redevelopment interventions in the so-called judicial citadels.

All interventions will be carried out by the competent Interregional Superintendencies for Public Works.

III.9 WATER INFRASTRUCTURES

The Italian water sector is experiencing a huge need for investment to bring the state of its facilities in line with the best international standards. The investments required to close the infrastructure gap, both in absolute terms and between the North and the South of the country, should allow:

- **making primary water infrastructures** (large feeder channels, reservoirs, large derivations) **efficient and resilient,** in order to adapt to climate change, so as

to effectively cope with the increasingly frequent water crises by going beyond the 'emergency' policy (security of water supply);

- **planning and implementing key maintenance works** needed especially for the adjustment and/or maintenance of the safety of large and small dams, but also of large water derivation and feeder systems, both in terms of safety of the structural works and the following restoration/increase in useful and transport capacity, and in terms of economic value (infrastructure safety), as well as a more effective management of the water resource along with a reduction in leaks, including in the distribution networks (resource optimisation);
- c**ompleting the major unfinished water schemes/systems**, especially in the south of Italy, while possibly redesigning them according to a more advanced procedure, where necessary.

As the current drinking water sector accounts for about 20% of the total consumption, while the agricultural sector as a whole covers about 53% of the total abstraction and the industrial and energy use respectively accounts for 21% and 6% of the total abstraction, greater coordination between the different sectors is crucial to address the issue of major national water infrastructures both in terms of new works and in terms of protection of the existing assets. This coordination should rely on an approach based on a common vision, adequate funding for the strategic objectives to be pursued, and clear and shared rules for identifying priorities, in order to achieve a standardised governance of water resources, aimed at regulating the distribution of the resource according to the water needs and the availability of individual regions.

As water emergencies are becoming more frequent over the last few years, thus implying serious consequences on a social and economic context already heavily affected by the COVID-19 emergency, urgent maintenance and/or adjustment operations on existing water infrastructures (dams, supply systems, feeder channels, distribution networks) has been identified.

Moreover, as provided for in Italian Decree-Law No. 76 of July 2020 (the so-called *Semplificazioni* Decree-Law), the **extraordinary commissioners for the implementation of 11 infrastructural interventions in the water sector** have been appointed by decrees of the President of the Council of Ministers of April 2021, **for a total amount, at the planning stage, estimated at EUR 2.8 billion** (for some interventions the final amounts will be defined upon completion of the planning stage). The eleven interventions are divided into three categories:

- improvements and/or adjustments of operating infrastructures that, as a result of the periodic control and monitoring activities carried out by the concession-holders/operators of the water resource, have shown the need for significant extraordinary maintenance. This group includes the dams of Govossai, Rio Olai, Monte Pranu, Cantoniera, Rio Mannu di Pattada and Maccheronis;
- completion of unfinished dams, including the dams of Cumbidanovu, Montinieddu, Is Canargius and Pietrarossa;
- primary water supply interventions from the Peschiera springs to supply the city of Rome.

The completion of the water supply systems of the Campolattaro dam (which represents one of the main water systems in southern Italy for both drinking and

irrigation supply (cost currently estimated at approximately EUR 520 million) is being put under the administration of an external commissioner.

The interventions on dams aim to increase the total available resource by almost 700 million cubic metres, to be used for irrigation, drinking, hydroelectric power, and protection of downstream areas (flood lamination). Overall, thanks to the various funds available and described below, over the **last year the Government has allocated EUR 3.87 billion to carry out interventions aimed at safeguarding water resources** (Table III.9.1). This is the largest investment in a long time for this sector, which will enable Italy to deal more effectively, though still partially, with the effects of the current and future climate crisis.

TABLE III.9.1: NEW MIMS FUNDING FOR WATER RESOURCE PROTECTION MEASURES

	(EUR million)
PNRR-M2C4-I4.1 INVESTMENT IN PRIMARY WATER INFRASTRUCTURES FOR THE SECURITY OF WATER SUPPLY (additional PNRR resources)	900
PNRR-M2C4-I4.1 INVESTMENT IN PRIMARY WATER INFRASTRUCTURES FOR THE SECURITY OF WATER SUPPLY (resources to be planned under existing legislation)	708
PNRR-M2C4-I4.2 REDUCTION OF LEAKS IN WATER DISTRIBUTION NETWORKS, INCLUDING DIGITISATION AND MONITORING OF THE NETWORKS (public notice being prepared)	900
NATIONAL OPERATIONAL PROGRAMME FOR INFRASTRUCTURES AND NETWORKS 2014-2020 - AXIS IV 'REACT-EU'	482
FUND FOR DEVELOPMENT AND COHESION 2021-2027 - '*WATER INFRASTRUCTURE*' INTERVENTION LINE	442
Budget Law 2022 (measures to be identified)	440
Total	**3,872**

Given the current water crisis, which is also expected in the coming years as a result of the extended and increasingly frequent droughts, the future infrastructure priorities will focus on interventions aimed at mitigating the effects of climate change and increasing the resilience of water infrastructures. To this end, investments for the completion of works under the administration of external commissioners, whose current residual financing gaps are shown in Table III.9.2, will represent a priority along with interventions related to the increase of the storage and supply/transport capacity of water resources such as, for example, the enhancement of the Sinni water scheme, new reservoirs planned or being planned in Piedmont and Emilia-Romagna (Val d'Enza) and Apulia (Piano dei Limiti), the completion of the main water schemes in the regions of Southern Italy (in Calabria and Sicily), new planning of multi-purpose reservoirs, with a focus on irrigation and hydroelectric uses to meet drinking water needs and increase national agricultural and energy production as a priority in the current international crisis, starting with some experiments promoted by the Land Reclamation Authorities.

TABLE III.9.2: ESTIMATED CURRENT FINANCING GAPS FOR WATER INFRASTRUCTURES UNDER THE ADMINISTRATION OF AN EXTERNAL COMMISSIONER

	(EUR million)
Safety measures on the Peschiera Aqueduct	250
Completion of unfinished dams in Sardinia and Sicily	20
Improvement or adjustment of dams in operation in Sardinia	89
Water supply works and completion of the Campolattaro dam	(upon completion of final design)
Total	**359**

THE NATIONAL PLAN FOR INFRASTRUCTURE AND SAFETY INTERVENTIONS IN THE WATER SECTOR

For the National **Plan for Infrastructure and Safety Interventions in the Water Sector** (formerly the National Plan for Interventions in the Water Sector, '*Reservoirs' and* '*Aqueducts*' sections), **interventions worth approximately EUR 590 million have been financed,** with three different measures issued in 2018 and 2019. Additional EUR 708.5 million have been planned with a fourth measure issued in 2021 and supplemented with additional resources from the National Recovery and Resilience Plan (**additional EUR 900 million**), within the framework of the PNRR M2C4-I4 measure 1 '*Investments in primary water infrastructures for the security of water supply*', detailed in the following section (Table III.9.3).

TABLE III.9.3: MEASURES TAKEN TO IMPLEMENT THE NATIONAL PLAN

Measure	Section	Subject	Amount
Interministerial Decree No. 526 of 5 December 2018	-	MIMS*	250 EUR million
Prime Ministerial Decree of 17 April 2019	Reservoirs	MIMS**	260 EUR million
Prime Ministerial Decree of 1 August 2019	Aqueducts	ARERA***	80 EUR million
Ministerial Decree No. 517 of 16 December 2021	-	MIMS****	708.5 EUR million
Total			**1,298.5 EUR million**

** In agreement with the Ministry of Agricultural, Food and Forestry Policies - MIPAAF; ** In agreement with the Ministry of Economy and Finance - MEF, Ministry of Cultural Heritage and Activities and Tourism - MIBAC, Minister of Ecological Transition - MITE, Ministry of Agricultural, Food and Forestry Policies - MIPAAF, after consulting the Italian Regulatory Authority for Energy, Networks and Environment - ARERA;*
**** final proposal prepared by the MIMS, on the basis of ARERA's provisions, in agreement with MEF, MIBAC, MITE, MIPAAF; **** Resources under the current legislation Programmed under the PNRR - measure M2C4-I4.1.*

PNRR M2C4 - I4.1: INVESTMENTS IN PRIMARY WATER INFRASTRUCTURES FOR THE SECURITY OF WATER SUPPLY

The PNRR investment section **M2C4-I.4.1 - *Investments in primary water infrastructures for the security of water supply*** - provides for interventions on supply systems for drinking water and/or irrigation purposes aimed at optimising and completing water infrastructures for the supply, storage and conveyance of the resource, with the aim of increasing resilience to climate change, improving the security of the existing infrastructures and reducing the wastage of resources. The resources allocated for the M2C4-I4.1 investment section amount to EUR 2,000 million, of which EUR 900 million from additional PNRR resources and EUR 1,100 million from resources under current legislation.

The resources were planned with Ministerial Decree No. 517 of 16 December 2021, which identifies three groups of interventions, defined by the preliminary procedure conducted by the General Directorate for Dams and Water Infrastructures and the Technical Mission Department of the MIMS, in collaboration with the District Basin Authorities and the Regulatory Authority for Energy, Networks and Environment (ARERA), by considering:

- the strategic nature of the intervention;
- the spending capacity of the proposing body;
- the absence of specific uncertainties in the authorisation and expropriation phases;
- the exclusion of designs and interventions relating to the construction of new dams;
- compliance with targets and milestones connected to the M2C4 - I4.1 investment section (works awarded as of 30 September 2023, completion of activities as of 31 March 2026);
- compliance with the clause of 40% of the investments to be allocated to the regions of southern Italy.

The decree identifies 124 measures (Table III.9.4), to be implemented with 74 different implementing bodies, divided into the following three annexes, which form part of the measure:

- Annex 1 'Additional PNRR Resources', consisting of 39 interventions totaling **approximately EUR 900 million**.
- Annex 2 'Resources up to 2026 under current legislation to be planned - former National Water Sector Plan - section 'Reservoirs' and section 'Aqueducts', consisting of 53 interventions totalling **about EUR 708 million.**
- Annex 3 'Resources already planned under current legislation (interventions consistent with and ascribable to the PNRR)', consisting of 32 interventions totalling **approximately EUR 391 million.**

TABLE III.9.4: DISTRIBUTION OF INTERVENTIONS PURSUANT TO MINISTERIAL DECREE NO. 517/2021, PNRR-M2C4-I4.1

	ANNEX 1		*ANNEX 2*		*ANNEX 3*		TOTALS	
	No. of interventions	eligible funding (EUR million)	No. of interventions	eligible funding (EUR million)	No. of interventions	eligible funding (EUR million)	No. of interventions	eligible funding (EUR million)
NORTH	16	274.95	12	316.53	11	104.15	**39**	**695.63**
CENTRE	9	183.86	21	93.06	2	19.27	**32**	**296.19**
SOUTH	14	441.14	20	298.91	19	267.15	**53**	**1007.20**
TOTALS	**39**	**899.94**	**53**	**708.50**	**32**	**390.57**	**124**	**1999.02**

ANNEX 1 Additional PNRR resources
ANNEX 2 Resources to be planned - former National Water Sector Action Plan
ANNEX 3 Resources already planned under existing legislation - former National Water Sector Action Plan and Development and Cohesion Fund 2014-2020

Among the works financed or co-financed, the most relevant ones in economic terms and having a particular strategic importance relate to the construction of the Campolattaro dam in Campania, four safety interventions on the water supply system for the city of Rome, a new drinking water aqueduct in Piedmont (Orco Valley), the completion of the Pietrarossa dam in Sicily, upgrade of important drinking water schemes in Sicily and Sardinia and irrigation schemes in Emilia-Romagna, and the restoration of the Abate Alonia dam in Basilicata (Table III.9.5).

TABLE III.9.5: MAIN INTERVENTIONS PURSUANT TO MINISTERIAL DECREE NO. 517/2021, PNRR-M2C4-I4.1

REGION	IMPLEMENTING BODY	INTERVENTION	FUNDING (EUR million)
CAMPANIA	Campania Region	Construction of the Campolattaro Dam supply systems	205
LAZIO	Acea ATO 2 S.p.A.	Security and modernisation project for the water supply system of the metropolitan city of Rome - 'Security and modernisation interventions for the Peschiera water system', Subprojects NEW MARCIO AQUEDUCT - LOT I DOUBLING OF THE VIII SIPHON - CASA VALERIA - RIPOLI TUNNEL EXIT SECTION MONTE CASTELLONE - COLLE S.ANGELO PIPE (VALMONTONE) OCTAVIA - TRIONFALE WATER CONVEYANCE SYSTEM	150
PIEDMONT	SMAT S.p.A.	Orco Valley Project	93
SARDINIA	ENAS	Extraordinary maintenance works with replacement and/or structural rehabilitation of several sections of the 'Coghinas I' and 'Coghinas II' aqueducts in the municipalities of S. Maria Coghinas, Valledoria, Castelsardo, Sorso, Sassari, and Porto Torres.	66
SICILY	Sicily Region	Pietrarossa Dam - Interventions for the completion of the dam	60
SICILY	Siciliacque S.p.A.	Interventions to upgrade the water system in south-western Sicily: Conveyance from Montescuro Ovest to Mazara, Petrosino, Marsala	54
EMILIA-ROMAGNA LOMBARDY	Consorzio della Bonifica Burana	Interventions to improve the irrigation and drainage system of the Burana Po di Volano basin	49
BASILICATA	Basilicata Land Reclamation Authority	Abate Alonia Dam Restoration	43
EMILIA-ROMAGNA	Renana Land Reclamation Authority	Urgent purging interventions with recovery of the full reservoir capacity of the Lorgara, Garda and Menata Collectors and optimisation of the pumping system for irrigation purposes of Saiarino and Vallesanta waterworks in the municipality of Argenta	40

NATIONAL OPERATION PROGRAMME FOR INFRASTRUCTURE AND NETWORKS 2014-2020 - AXIS IV 'REACT-EU'

In strategic complementarity with the PNRR M2C4-I4.2 investment, we find the 'REACT-EU' Programming, which allocates additional resources for the cohesion policy, under the NOP Infrastructure and Networks 2014-2020, to support **leakage reduction** measures in **the water distribution network in Southern Italy**, **for an initial amount of EUR 313 million, in addition to the further allocation of EUR 169 million**, for a total of EUR 482 million, defined in February 2022 by the Department of Cohesion. REACT-EU Programming under the NOP Infrastructure and Networks 2014-2020 falls within the framework of the *European Green Deal* COM/2019/640 final, through which the EU aims to transform the Union into a modern, resource-efficient and competitive sustainable economy, by providing an action plan to increase resource efficiency, embracing a clean and circular economy, restoring biodiversity and reducing pollution. The Programming also aims at reducing the '*water service divide'* between the central and northern Italy and southern and insular Italy, and at fostering the efficient management of water resources.

Despite investments in the water sector have partially resumed following the acquisition by ARERA of the competences for the regulation and control of water services, the recovery still appears insufficient compared to the real needs for the modernisation and development of Italian water infrastructures.

In line with the NOP's procedures, a notice was published in November 2021 addressed to entities regulated by ARERA with a legal concession pursuant to Italian Legislative Decree No. 152/2006 operating in the areas of the five least developed regions of Southern Italy (Basilicata, Calabria, Campania, Apulia, Sicily), in order to submit proposals for investments useful to achieve the following objectives:

- reduction in leaks in drinking water networks;
- stronger resilience of water systems to climate change;
- stronger digitisation of networks, to be transformed into a 'smart grid', to promote effective management of water resources, reduce waste and minimise inefficiencies.

All eligible interventions, to be completed by December 2023, must be geared towards reducing water dispersion and improving the quality of the service provided to citizens, while setting the conditions for a significant progress in the ability to sustainably manage water infrastructure assets, based on the best available technologies, international best practices and in accordance with the principles and guidelines adopted by the European Union, consistent with the principles and objectives of the national strategy for sustainable development and the National Plan for Adaptation to Climate Change.

After evaluating the proposals submitted, the MIMS financed 18 interventions for a total of EUR 482 million: one intervention in Basilicata for EUR 49 million, six interventions in Campania totalling EUR 127 million, one intervention in Apulia for EUR 90 million and 10 interventions in Sicily totalling EUR 216 million.

PNRR M2C4 - I4.2 REDUCING LEAKAGE IN WATER DISTRIBUTION NETWORKS, INCLUDING DIGITISATION AND MONITORING OF NETWORKS

The PNRR **M2C4-I.4.2 investment category** - ***Reduction of leakage in water distribution networks, including digitisation and monitoring of networks*** - provides for interventions to reduce leakages in water distribution networks, including digitisation and monitoring of networks, with the aim of addressing long-standing deficiencies especially in water resource management and significantly reducing drinking water losses by upgrading and modernising water distribution networks through advanced control systems to monitor the main hubs and the most critical points along the network.

The resources allocated for the M2C4-I4.2 investment category amount to EUR 900 million and the interventions to be financed will be selected through a public notice issued on 9 March 2022. As provided for in the PNRR, **40% of the total resources, i.e., EUR 360 million, is to be allocated to the regions of southern Italy** (Abruzzo, Basilicata, Calabria, Campania, Molise, Apulia, Sicily, Sardinia).

The Notice is open to Local Regulatory Authorities (*Enti di Governo d'Ambito*) operating in Italy that have awarded the service to persons eligible pursuant to Art. 172 of Italian Legislative Decree No. 152/2006 or compliant with the current pro-tempore regulations in force operating in Italy and promotes processes for the restoration of efficiency of the water distribution networks within the Integrated Water Service. The interventions are to be aimed at reducing water dispersion and improving the quality of the service provided to citizens, while also setting the conditions for improving the ability to manage water infrastructure assets in a sustainable manner based on the best available technologies, the best international practices, and according to the principles and guidelines adopted by the European Union, consistent with the principles and objectives of the national strategy for sustainable development and the National Plan for Adaptation to Climate Change.

Furthermore, for targets and milestones set by the PNRR, in addition to the awarding of all contracts by 30 September 2023, the interventions will have to ensure the division of the water network into districts of 25,000 km of by 31 March 2026 with an intermediate target of 9,000 km by 31 December 2024.

THE OPERATIONAL PLAN FOR DAMS - 2014-2020 DEVELOPMENT AND COHESION FUND

CIPE Resolutions No. 54/2016 and No. 12/2018 adopted the **'2014-2020 Development and Cohesion Fund Operational Plan - Line of Action: Extraordinary maintenance and safety interventions on dams'** and its update, which provides for 116 extraordinary maintenance and safety interventions on large dams and 13 design-only interventions. Specifically, seismic safety inspections of large dams and ancillary works located seismic zones 1 and 2 have been financed - for a total funding of EUR 468 million. The interventions cover 56% dams on which testing operations are to be completed and 44% dams requiring extraordinary maintenance. Funding has only been granted to public concession-holders/operators, while dams for hydroelectric use only and those for industrial use only have been excluded.

The state of implementation of this investment Programme symbolises the critical issues in the large dam sector: the first issue relates to the lack of a design

aimed at solving the safety problems arising from the ageing of the structures and those detected during the audits carried out by the MIMS or following the results of the seismic and hydrological upgrading of the infrastructures. On the other hand, the availability of funding for the design and the execution of interventions, has revealed a poor coordination with authorisation procedures (primarily environmental), which in some cases slow down or impede interventions.

The funding currently obtained through agreements entered into between MIMS and the implementing bodies covers 127 interventions, for a total allocated amount worth EUR 431 million. In this regard, notwithstanding the technical procedures concluded or in progress in relation to the intervention projects and seismic inspections, given the technical-financial progress of the interventions and the deadlines set by the rules of the financial plans, re-evaluations are being carried out to identify the priority services and works that can be implemented under the Operational Plan and the proposal of any necessary adjustments with no additional costs to be provided for in the Plan.

Specifically, in the case of interventions where seismic inspections and designs have revealed significant financing gaps, the intervention concerned will have to be adjusted, by limiting the allocation of financial resources to engineering services suitable to complete the design itself[20] and, if necessary, to the priority works that can be contracted out compatibly with the deadline set for achieving the legally binding obligations. Excess funding for interventions may be reallocated and used for other interventions (works) that can be completed within the deadline set. Should seismic inspections and designs reveal cost savings during interventions, the available funding may be reallocated in favour of interventions lacking financial coverage.

2021-2027 DEVELOPMENT AND COHESION FUND – LINES OF ACTIONS FOR 'WATER INFRASTRUCTURES'

The CIPESS resolution currently being published following the meeting held on 15 February 2022, has brought forward infrastructure-related interventions under the 2021-2027 Development and Cohesion Fund, consistent with the partnership agreement for European structural and investment funds and the PNRR. One of the thematic areas in which the Fund operates, relating to '*Mobility and Sustainable Infrastructures*', includes the line of action for '***water infrastructure***'**.** The projects selected are currently consistent with the PNRR interventions and ensure continuity with the activities initiated with the 2014-2020 Development and Cohesion Fund projects, according to principles of complementarity and additionality of resources, with particular attention to the sectors excluded from funding under the *Next Generation EU*. Indeed, the interventions related to the upgrading of water infrastructures are additional to the funds allocated to these infrastructures in the PNRR and aimed at increasing the resilience to climate change of large reservoirs and the efficiency of water distribution.

[20] *Ideally up to a level suitable for contracting-out (outside the scope of the Plan and subject to different financial coverage, such as the advances requested by the Sicily Region to be borne under the 2021-2027 Development and Cohesion Plan).*

The projects, prioritised by the regions concerned, cover three areas of interest:

- **supervision and maintenance**: ensure the maintenance of the existing infrastructure assets, preventing risks also through advanced methods and technologies;
- **green and digital infrastructures**: build more sustainable and resilient infrastructures, capable of reducing existing inequalities and responding to the needs of businesses and people, in line with the European Green Deal;
- **cities, towns and rural areas**: prioritise Programmes countering climate change and adapting to new social contexts in cities and towns, while developing intervention Programmes supporting active policies to counter depopulation in inland areas;

based on the following principles:

- **additionality and complementarity of resources**: ensure consistency with the objectives of the PNRR, providing for complementarity for interventions not properly developed in the Plan, yet indispensable for the country's development and the reduction of territorial and social gaps, while strengthening budgetary allocations for works;
- **degree of thoroughness of the designs**, as provided for in Article 1, paragraph 178 (d) of Italian Law No. 178/2020.

The '*water infrastructures*' line of action identifies interventions, worth EUR 442 million, mostly concentrated in Campania, Sardinia and Sicily: all regions that have particularly suffered the effects of climate change in recent years. The interventions concern 'flagship projects', for a total amount of EUR 130 million, and 'works of regional interest', for a total value of EUR 312 million, which will be managed directly by the Regions, upon entering into implementation agreements with the central departments of the MIMS and in agreement with the bodies concerned, in order to facilitate the preliminary audit and management phases of the financing.

The MIMS is further working, in agreement with the Minister for the South and Territorial Cohesion, to ensure that the water infrastructure sector can become eligible for the new 2021-2027 Development and Cohesion Fund Programming, also on the basis of the innovative proposal of the Minister for Cohesion to establish a 'Water' Institutional Development Contract (*Contratto Istituzionale di Sviluppo - CIS*).

OTHER FUNDING FOR THE WATER SECTOR

In June 2015, the competences on water and electricity systems defined as '*strategic*' by the so-called 'Objective Law' (*Legge Obiettivo*), which until then were among the responsibilities of the abolished Technical Mission Department[21] , were transferred to the Directorate-General for Dams and Water Infrastructures. The activity involved the preliminary examination of the requests for disbursement of the funding allocated by CIPE. The new interventions concerned 56 water systems,

[21] Pursuant to Article 163 of Italian Legislative Decree No. 163/2006.

six of which in the electricity sector and one in the hydrocarbon exploitation sector (both interventions with non-public funds). Out of 56 interventions in the water sector amounting to about EUR 2.2 billion, 19 were completed for EUR 830 million (about 37%), 12 interventions have not been started (more than 15 years after the funding was granted) amounting to EUR 572 million (about 25%), while four are financed on other Programmes.

The activities related to 'Water Resources' Operational Programme of the 1994/99 Community Support Framework (CSF) have also been transferred to the competences of the Directorate-General for Dams and Water Infrastructure. The amount of the water works Programme to be financed amounts to EUR 232 million; however, the available funding is approximately EUR 187 million, with a Programme that is approximately 20% more than the available funding.

For several years, the MIMS has encouraged hydroelectric concession-holders to carry out a **Programme to improve efficiency, ensure modernisation and extraordinary maintenance of large hydroelectric and multi-purpose dams**. These are complex works to be performed over several years, predominantly carried with full reservoirs, as emptying the reservoir and working without interferences is impossible given the multi-purpose nature of the dams. The Programmes for the development and completion of the individual interventions go hand in hand with the development of safety inspections of the structures in operation, which are to be conceived as a priority due to the changing hydrology and new knowledge gained in the field seismic events.

According to the major hydroelectric concession-holders, the safety inspection phase is expected to be completed by 2022. At the same time, interventions have begun on the assets complementary to the dam structure (guard houses, bridges connecting the road system, accesses, concrete and metal works constituting the drains, etc.). Many projects are being drafted, while other interventions are being designed and for some of them the authorisation process is underway, while for others the works have already been contracted.

The investments planned for the period 2021-2022 amount to EUR 330 million, although extraordinary maintenance interventions are difficult to be planned due to uncertainties affecting the legislation on the renewal of hydroelectric concessions, the concession extension scheme, and changes in the allocation rules, with referral to secondary legislation that has not yet been defined.

APPENDIX: THE EUROPEAN REGULATORY FRAMEWORK ON SUSTAINABLE MOBILITY TARGETS FOR THE PERIOD 2030-2050

The Working Group 2 '*Sustainable Mobility*' of the Interministerial Committee for Ecological Transition (*Comitato Interministeriale per la Transizione Ecologica* - CITE), in view of the update of the Ecological Transition Plan, reviewed the quantitative targets to be achieved by 2030 and 2050 at European level in terms of sustainable mobility. This appendix collects some of the results of the survey carried out and, for each policy option analysed, provides for a description of the type of constraint, the time span, the quantitative target and/or the reference policy options.

Following the approval of the European Green Deal, the legislative framework is being deeply renewed. As a matter of fact, many existing regulations are currently being revised and negotiated by the Member States. On 14 July 2021, the European Commission unveiled a new set of instruments for the fulfilment of the European Green Deal called '*Fit for 55*' with the goal of reducing emissions by 55% by 2030 compared to 1990 and turning the EU into the first fully carbon neutral continent by 2050.

This section provides a list of the main measures included in the '*Fit for 55*' package of proposals related to sustainable mobility and other recent European Commission proposals aimed at achieving the objectives of the Green Deal. Specifically, the appendix has been divided into two tables summarising the following measures:

- Table A.1: European regulatory framework approved;
- Table A.2: European regulatory framework under negotiation.

TABLE A.1: EUROPEAN REGULATORY FRAMEWORK APPROVED								
Measure	**Reference proposal**	**Entry into force (year)**	**Target (year)**	**Type of measure**	**Sector**	**Description**	**Objective and/or European target**	**Link**
Directive 2003/96/EC – Taxation of energy products	-	2003	-	Directive	Fuels and energy products	Council Directive 2003/96/EC lays down EU rules for the taxation of energy products and electricity. The Directive applies to products used as **motor** fuel or heating fuel (to run engines or to produce heat) and to electricity. Other uses of energy products, such as their use as raw materials, and certain uses of electricity are not covered by the directive. The Energy Taxation Directive sets minimum levels of taxation. In addition to the minimum rates, Member States are free to set their national rates as deemed appropriate. The Energy Taxation Directive sets out the exemptions and reductions allowed for Member States' standard rates as well as their conditions. Some exemptions are compulsory, such as those that apply to energy products and electricity used for electricity production. Optional exemptions and reductions, e.g., for energy-intensive businesses, also apply. Most Member States have also used the possibility of applying differentiated national rates to the same products under certain circumstances or conditions, thus integrating different policy objectives into their energy policy.	The objective of the Energy Taxation Directive is to ensure proper functioning of the internal market and to avoid double taxation or serious distortions of trade and competition between different energy sources and between energy consumers and suppliers that could generate considerable differences in national tax rates. The excise framework has led to the harmonisation of national legislations of EU Member States, while still facing several structural challenges. These challenges are mainly connected to the creation of a level playing field in the single market and the movement of energy products within the Union. **The revision of this legislation will have an impact on the taxation of all fuels and energy products also used for transport purposes.**	Link

TABLE A.1: EUROPEAN REGULATORY FRAMEWORK APPROVED								
Measure	**Reference proposal**	**Entry into force (year)**	**Target (year)**	**Type of measure**	**Sector**	**Description**	**Objective and/or European target**	**Link**
Directive 2010/40/EU - Rules for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport	-	2010	2012	Directive	Road transport	ITS services are advanced applications aiming to provide innovative services for various modes of transport and traffic management. In ITS, information and communication technologies are applied to road transport, including infrastructures, vehicles and users, traffic management and mobility management. For their implementation, EU countries must ensure the application of the relevant specifications adopted by the European Commission. However, individual EU countries may still decide on the deployment of such applications and services in their own territory.	The directive aims to promote the development of innovative transport technologies to create intelligent transport systems (ITS). This will be achieved by introducing common EU standards and specifications. They aim to establish **interoperable and efficient ITS** services, allowing individual EU countries to decide which systems to invest in. Priority areas for the development and use of specifications and standards include: - Optimal use of road, traffic and travel data, to enable road users to plan trips; - continuity of traffic and freight management ITS services (i.e., services that do not stop when lorries cross borders); - ITS road safety and security applications (e.g., warning in case of reduced visibility or in the event of people, animals and debris on the road); - linking vehicles with the transport infrastructure, i.e., equipping vehicles in such a way as to enable them to exchange data or information. Within these priority areas, there are 6 priority actions focusing on: - EU-wide multimodal mobility information services (for trips involving several modes of transport, e.g., rail and ship); - real-time traffic information services throughout the European Union;	Link

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Measure	Reference proposal	Entry into force (year)	Target (year)	Type of measure	Sector	Description	Objective and/or European target	Link
Directive 2010/40/EU - Rules for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport	-	2010	2012	Directive	Road transport	ITS services are advanced applications aiming to provide innovative services for various modes of transport and traffic management. In ITS, information and communication technologies are applied to road transport, including infrastructures, vehicles and users, traffic management and mobility management. For their implementation, EU countries must ensure the application of the relevant specifications adopted by the European Commission. However, individual EU countries may still decide on the deployment of such applications and services in their own territory.	- procedures for the free communication of traffic information related to road safety to users; - harmonised availability of an EU-wide interoperable eCall service; -information services for safe and secure parking places for trucks and commercial vehicles; - reservation services for safe and secure parking places areas for trucks and commercial vehicles.	
Commission White Paper on Transport: Roadmap to a Single European Transport Area	Transport 2050	2011	2030-2050	White Paper	General	On 28 March 2011, the European Commission adopted a comprehensive strategy for a competitive transport system capable of increasing mobility, removing major obstacles in key areas and fuelling growth and employment.	**Innovative and sustainable fuels and propulsion systems:** - halve the use of '*conventionally fuelled*' cars in urban transport by 2030; phase them out in cities by 2050; achieve essentially CO2-free city logistics in major urban centres by 2030 - low-carbon sustainable fuels in aviation to reach 40% by 2050 - also by 2050, reduce EU CO2 emissions from maritime bunker fuels by 40% (if feasible 50%).	Link

TABLE A.1: EUROPEAN REGULATORY FRAMEWORK APPROVED								
Measure	**Reference proposal**	**Entry into force (year)**	**Target (year)**	**Type of measure**	**Sector**	**Description**	**Objective and/or European target**	**Link**
Commission White Paper on Transport: Roadmap to a Single European Transport Area	Transport 2050	2011	2030-2050	White Paper	General	On 28 March 2011, the European Commission adopted a comprehensive strategy for a competitive transport system capable of increasing mobility, removing major obstacles in key areas and fuelling growth and employment.	**Multimodal logistics chains:** - on distances over 300 km 30% of road freight transport should be shifted to other modes, such as rail or waterborne transport, by 2030. In 2050, this percentage should increase to 50% thanks to efficient and green freight corridors; - complete the European high-speed rail network by 2050. Triple the existing high-speed rail network by 2030 and maintain a dense rail network in all Member States; - fully functional and EU-wide multimodal TEN-T '*core network*' by 2030; a high quality and capacity network and a corresponding set of information services by 2050; - connect all major network airports to the rail network by 2050, preferably high-speed rail; ensure that all major seaports are sufficiently connected to the rail freight and, where possible, to inland waterway system. **Four additional targets relate to transport efficiency through information systems and market incentives with targets set for 2020.**	
2030 Climate and Energy Framework	*Clean Energy Package* (CEP)	2014	2030	-	General	The measure, enacted in 2014, aims to update the 2020 targets set by the *Climate and Energy package for the* 2021-2030 decade.	- Reduction of at least 40% of GHG emissions from energy consumption, compared to 1990 values (2020 target: 20%). **In 2021, as part of the European *Green Deal*, the '*European Climate Act*' raised the target to 55%, making it binding;**	Link

TABLE A.1: EUROPEAN REGULATORY FRAMEWORK APPROVED								
Measure	**Reference proposal**	**Entry into**	**Target (year)**	**Type of measure**	**Sector**	**Description**	**Objective and/or European target**	**Link**

		force (year)						
Directive 2014/94/EU - Implementation of Alternative Fuels Infrastructure (DAFI)		2014	2020	Directive	Road, sea, air	This directive establishes a common framework of **measures for the creation of an infrastructure network for alternative fuels** in the European Union in order to minimise dependence on oil and mitigate environmental impacts in the transport sector. This Directive lays down minimum requirements for the construction of alternative fuel infrastructure, including: -charging points for electric vehicles; -Natural gas refuelling points (LNG and CNG); -hydrogen charging stations. Interventions are to be implemented through the national strategic frameworks of the Member States.	This directive requires each member state to establish its own policies to create a market for alternative fuels and to ensure an appropriate number of publicly accessible charging points, especially to ensure the cross-border movement of vehicles and ships on the TEN-T network.	Link
Regulation 2018/842/EU - Effort Sharing Regulation (ESR)	*European Union climate and energy package*	2018	2030	Regulation	General	The *Effort Sharing Regulation* (ESR) is complementary to the ETS mechanism. This regulation legislates on the sharing of efforts to reduce greenhouse gas emissions by Member States by assigning each country enhanced emission reduction targets based on GDP. It concerns non-ETS or LULUCF sectors: **transport**, construction, agriculture, non-ETS small industry, waste. A revision of the ESR with new objectives is currently being negotiated (see Table A.2 '*European regulatory framework under negotiation*')	EU-wide GHG emission reduction target of 30% by 2030 compared to 2005 for non-ETS sectors, **including transport**. Italian GHG emission reduction target of 33% by 2030 compared to 2005.	Link
2050 - Long-term strategy		2018	2050		Road, rail, sea, air	The strategy for a climate-neutral European Union consists of 7 pillars. The strategic pillar on mobility includes the **development of clean, safe and connected mobility**.	Decarbonisation by 2050.	Link

TABLE A.1: EUROPEAN REGULATORY FRAMEWORK APPROVED

Measure	**Reference proposal**	**Entry into**	**Target (year)**	**Type of measure**	**Sector**	**Description**	**Objective and/or European target**	**Link**

		force (year)						
Regulation (EU) 2019/631 - Average CO2 emission limits for new passenger cars and light commercial vehicles		2019	2030	Regulation	Road (cars and vans)	On 17 April 2019, the European Parliament and the Council adopted EU Regulation 2019/631, which sets new CO2 emission standards passenger cars and light commercial vehicles: from 1 January 2020, the Regulation sets an EU fleet-wide target of 95 g CO2/km for the average emissions of new passenger cars and an EU fleet-wide target of 147 g CO2/km for the average emissions of new light commercial vehicles registered in the EU.	<table><tr><th></th><th>Emission limits from 2020</th><th>Emission limits from 2025</th><th>Emission limits from 2030</th></tr><tr><td>Passenger cars</td><td>95 gCO_2 /km</td><td>81 gCO_2 /km</td><td>59 gCO_2 /km</td></tr><tr><td>Light Duty vehicles</td><td>147 gCO_2 /km</td><td>125 gCO_2 /km</td><td>92 gCO_2 /km</td></tr></table>	Link
Regulation (EU) 2019/1242 - Average CO2 emission limits for heavy duty vehicles		2019	2030	Regulation	Road (heavy-duty vehicles)	On 20 June 2019, the European Parliament and the Council adopted EU Regulation 2019/1242 setting new CO2 emission standards for heavy-duty vehicles, such as trucks and lorries.	30% reduction in emissions from heavy-duty vehicles to be achieved by 2030, with an intermediate target of 15% by 2025, compared to 2019 values. By 2025, manufacturers will have to ensure that at least 2% of the market share of new vehicle sales is made up of low- or zero-emission vehicles. In 2022, the European Commission will have to propose new targets beyond 2030 in line with the Paris Agreement.	Link
European *Sustainable and smart mobility strategy*	European *Green Deal*	2020	2050	Proposal package	Road, rail, sea, air	The objective of this strategy, linked to the European Green Deal, is to enable the achievement of the emission reduction target through an intelligent, competitive, safe, accessible and affordable transport system. **The achievement of these objectives is based on ten flagship initiatives:** - FARO 1: Promote the deployment of zero-emission vehicles, renewable and low-carbon fuels and related infrastructures; - FARO 2: build zero-emission airports and ports;	**By 2030:** - at least 30 million zero-emission vehicles on European roads; - climate neutrality in 100 European cities; - doubling high-speed rail traffic; - planned collective trips shorter than 500 km to be carbon neutral within the EU; - widespread automated mobility;	Link

TABLE A.1: EUROPEAN REGULATORY FRAMEWORK APPROVED

Measure	Reference proposal	Entry into force (year)	Target (year)	Type of measure	Sector	Description	Objective and/or European target	Link

European ***Sustainable and smart mobility strategy***	European *Green Deal*	2020	2050	Proposal package	Road, rail, sea, air	- FARO 3: make interurban and urban mobility more sustainable and healthy; - FARO 4: make freight transport greener; - FARO 5: carbon pricing and better incentives for users; - FARO 6: turn connected and automated multimodal mobility into a reality; - FARO 7: innovation, data and artificial intelligence for smart mobility; - FARO 8: stronger single market - FARO 9: make mobility fair and equitable for all; - FARO 10: improved transport security and safety.	- inland waterway transport and short sea shipping to increase by 25% (compared to 2015); - rail freight traffic to increase by 50% (compared to 2015); - easier seamless multimodal passenger transport thanks to integrated electronic ticketing and paperless freight transport; - the multimodal trans-European transport network (TEN-T), equipped for sustainable and intelligent transport with high-speed connectivity, to be for the central network; - zero-emission ships to be ready for marketing. **By 2035:** - large, zero-emission aircraft to be ready for marketing. **By 2050:** - almost all new cars, coaches, buses and heavy-duty vehicles to achieve zero-emission target; - doubling rail freight traffic; - tripling high-speed rail traffic (compared to 2015); - 50% increase in inland waterborne transport and short sea shipping (compared to 2015); - bring the mortality rate of all modes of transport in the EU close to zero; - full operation of the multimodal Trans-European Transport Network (TEN-T), equipped for sustainable and intelligent transport with high-speed connectivity, for the entire network.	

TABLE A.1: EUROPEAN REGULATORY FRAMEWORK APPROVED

Measure	Reference proposal	Entry into force	Target (year)	Type of measure	Sector	Description	Objective and/or European target	Link

		(year)						
Directive 2003/87/EC - European Union Emission Trading Scheme (EU ETS) - Phase 4 2021-2030	Directive 2003/87/EC (ETS Directive)	2021	2030	Directive	Electricity, manufacturing, energy-intensive industries, air transport	The ETS regulates CO2 emissions in the electricity sector, manufacturing industry and energy-intensive industries, which now also covers emissions from aviation within the EU. The objectives of phase 4 are now being revised (see Table A.2 '*European legal framework under negotiation*').	Reduction of emissions to 2030 to 43% (compared to 2005 values)	Link
Regulation 2021/1119/EU - European Climate Law	European *Green Deal*	2021	2030-2050	Regulation	General	The European Climate Law converts the objectives of the European Green Deal to achieve climate neutrality by 2050 into law. The law also defines an *interim* target for the reduction of greenhouse gas emissions, which must reach 55% by 2030 compared to 1990 levels.	- a net internal reduction in greenhouse gas emissions (emissions excluding removals) of at least 55% compared to 1990 levels by 2030; - decarbonisation by 2050.	Link
Zero pollution action plan	European *Green Deal*	2021	2050		General	The '*Zero Pollution*' Plan for 2050 was approved with the aim of reducing air, water and soil pollution to levels considered harmful to health and the environment. The Action Plan aims to strengthen the EU's digital and '*green*' leadership to create a fairer and healthier Europe and to improve the planet. Actions on transport and sustainable mobility are presented in Flagship Initiative 2: **Supporting *Zero* Urban *Pollution***. As part of the forthcoming European Year of Greener Cities, in conjunction with Horizon Europe's '*Smart Cities and Zero Climate Impact*' mission proposal, the revision of the urban mobility package, the Covenant of Mayors and the initiative for a new European Bauhaus, key needs for urban greening and innovation to prevent pollution, including in indoor environments, will be identified. Activities in the field of transport and mobility include:	Targets on reducing emissions and environmental noise. **By 2030, the EU:** - is expected to reduce the health impacts (premature deaths) of air pollution by more than 55% compared to 2005; - is expected to reduce the percentage of people suffering from chronic disorders due to transport noise by 30% compared to 2017; - is expected to reduce the number of ecosystems in the EU where air pollution threatens biodiversity by 25% compared to 2005.	Link

TABLE A.1: EUROPEAN REGULATORY FRAMEWORK APPROVED

Measure	**Reference proposal**	**Entry into force (year)**	**Target (year)**	**Type of measure**	**Sector**	**Description**	**Objective and/or European target**	**Link**
Zero pollution action plan	European *Green Deal*	2021	2050		General	- the revision of the ambient air quality directives; - stricter emission limits for motor vehicles (Euro 7); - the reduction of air and noise emissions from means of transport;		Link

						- the Environmental Noise Directive; - follow-up of the evaluation of the directive on environmental noise emission by equipment for intended for outdoor use.		
Source: review of the European regulatory framework on sustainable mobility goals 2030-2050, prepared by CITE working group 2 'sustainable mobility'.								

TABLE A.2: EUROPEAN REGULATORY FRAMEWORK UNDER NEGOTIATION

Measure	Reference package	Entry into force (year)	Target (year)	Measure	Sector	Description	European objective and/or target	Link
Revision of the Energy Taxation Directive	*Fit for 55*	2021	2030	Directive	Air, sea	Fuels and electricity are currently taxed based on volume rather than energy content, thus favouring incentives that have allowed the use of highly polluting fossil fuels, thus not representing an incentive for operators to invest in innovations to make their production greener. **The aim is to tax the most polluting fuels as much**	Harmonise the minimum tax rate for heating and transport fuels with the EU's climate and energy goals, reducing social impacts, promoting clean technologies and eliminating obsolete exemptions (*air and maritime transport sector*) and reduced rates favouring the use of fossil fuels. Higher taxation will be imposed on products	Link

						as possible. The current tax scheme will therefore be simplified by grouping energy products (used as fuels) and electricity into categories and classifying them according to their environmental performance.	generating greater CO2 emissions. **Taxation rationale**: highest taxation for conventional fossil fuels (diesel and gasoline); intermediate taxation for fossil-based but less harmful fuels with some potential to contribute to decarbonisation in the short and medium term (natural gas, LPG and fossil-derived hydrogen) for a transitional period of 10 years, increasing to the full reference rate thereafter; lowest taxation for electricity (regardless of its use), advanced sustainable biofuels, bioliquids, biogas and renewable fuels of non-biological origin such as renewable hydrogen. When fully operational, a minimum level of taxation will be imposed on fuels from renewable sources differentiated according to their level of sustainability: fossil fuel-like taxation for non-sustainable biofuels (including agro-energy crops); lowest taxation halved for sustainable biofuels and nearly zero for advanced biofuels.	

TABLE A.2: EUROPEAN REGULATORY FRAMEWORK UNDER NEGOTIATION

Measure	Reference package	Entry into force (year)	Target (year)	Measure	Sector	Description	European objective and/or target	Link

Directive of the European Parliament and of the Council amending Directive 2010/40/EU	*Sustainable and Smart Mobility Strategy*	2021	2040 / 2050	Directive	General	The proposal concerns the adoption of a directive of the European Parliament and of the Council amending Directive 2010/40/EU. This directive was conceived as a framework for action to accelerate and coordinate the deployment and use of ITS services on road transport and its interfaces with other modes of transport.	Fulfil the need to support the creation of a coordination mechanism in 2021 for the National Access Points (NAPs) created by the ITS Directive. More action is needed on interoperability, cooperation and data sharing to enable ITS services in Europe. **Therefore, the objectives** are as follows: - improve coordination for data accessibility; - take due account of the appearance of new STI issues and challenges; - improve the availability of key data on the entire road network (making them available in a digitally readable format).	Link
Revision of the Alternative Fuels Infrastructure Regulation (AFIR)	*Fit for 55*	2021	2030	Regulation	Road, sea, air	Each member state shall expand the recharging infrastructure for zero- and low-emission vehicles as they are progressively deployed.	For each pure electric vehicle (BEV), a total power of at least 1 kW shall be provided through public charging stations; for each plug-in hybrid vehicle (PHEV), a total power of at least 0.66 kW shall be provided through public charging stations. Charging infrastructures are to be located in both directions of travel at a maximum distance of 60 km between each other by 2025, and an adequate number of charging stations for heavy vehicles is to be ensured in urban centres. By 2030, all heavy vehicle parking areas will be required to host at least one charging point of at least 50kW.	Link

TABLE A.2: EUROPEAN REGULATORY FRAMEWORK UNDER NEGOTIATION

Measure	Reference package	Entry into force (year)	Target (year)	Measure	Sector	Description	European objective and/or target	Link

Revision of the Alternative Fuels Infrastructure Regulation (AFIR)	*Fit for 55*	2021	2030	Regulation	Road, sea, air	Each member state shall expand the recharging infrastructure for zero- and low-emission vehicles as they are progressively deployed.	Publicly accessible hydrogen refuelling stations should be installed with a maximum distance of 150 km between each other along the TEN-T hub and the overall TEN-T network and at least one should be available in each urban node. As regards power supply to stationary ships and aircraft, the draft regulation sets targets for the installation of shore-side power supply (cold ironing) for some ships (container and passenger ships) in seaports and for inland waterborne vessels, and for power supply to stationary aircraft at TEN-T hubs and global network airports.	Link
Revision of the Effort Sharing Regulation (ESR)	*Fit for 55*	2021	2030	Regulation	Road, rail, sea, air	The Effort Sharing Regulation (ESR) is complementary to the ETS mechanism. This regulation legislates on effort sharing in the reduction of GHG emissions by member states, by assigning each state enhanced emission reduction targets based on GDP. It concerns non-ETS or LULUCF sectors: transport, buildings, agriculture, small non-ETS industry, waste. The draft revision does not amend the current scope and structure of the regulation.	Changes to the *Effort Sharing Regulation* mechanism, with national targets in line with the GDP per capita and raising the overall emission reduction target to 40% by 2030 (from the previous 30% by 2030), compared to 2005 levels.	Link
Revision of Regulation 2019/631/EU - Average CO2 emission limits for new passenger cars and light commercial vehicles	*Fit for 55*	2021	2030	Regulation	Road (passenger cars)	In addition to emission trading as outlined for the ETS, in which the transport sector is planned to be included, the Commission is going to take action on emission limits for means of transport.	Increase in the emission reduction limits by 2030 for passenger cars and LDVs from the current 37.5% to 55% (compared to 2021 levels of 95 gCO2/km for the former and 147 gCO2/km for the latter). The reduction target will reach 100% by 2035, with the aim of registering only zero-emission cars from that year onwards.	Link

TABLE A.2: EUROPEAN REGULATORY FRAMEWORK UNDER NEGOTIATION

Measure	Reference package	Entry into force (year)	Target (year)	Measure	Sector	Description	European objective and/or target	Link
Revision of Regulation 2019/1242/ EU - Average		2022	2040	Regulation	Road (heavy-duty vehicles)	In 2022, the EU Regulation 2019/1242 on CO2 emission limits for heavy-duty vehicles is due for revision. This revision is intended to involve: - the targets set for 2030 while defining possible	Targets will be identified at the review stage.	Link

CO2 emission limits for heavy duty vehicles						targets for 2035 and 2040; - the inclusion of other types of heavy-duty vehicles, such as buses, coaches, commercial vehicles, etc; - incentive mechanisms for low- or zero-emission vehicles (ZLEVs); - the representativeness of the values of CO2 emissions and energy consumption; - the role of synthetic and alternative fuels produced from renewable energy; - the possible introduction of a pooling strategy; - the level of the excess emissions premium.		
Revision of the EU ETS mechanism	*Fit for 55*	2021	2030	Directive	Road transport, air transport	The ETS, which regulates CO2 emissions from power and heat producing and energy intensive industries, now also covers emissions from aviation within the EU. Although phase 4 of its implementation has just begun, the targets underlying the system are no longer able to meet the new 2030 targets set by the EU.	- Emission reduction to 62% (compared to 2005 values) by 2030. The cap currently aims to a 43% reduction; - Linear reduction of the maximum number of permitted allowances from 2.2% to 4.2% per year; - one-off' cut in the permitted ceiling of 117 million allowances; - from 2026 onwards, possibility of adjusting the benchmarks for free allowances in specific sectors (maximum reduction of benchmarks from 1.6% to 2.5%); - introduction of a conditionality for free allowances whereby installations subject to an 'audit' (Art. 8 of the Energy Efficiency Directive - also under revision) would be deducted 25% of the achievable '*free allowances*' if they fail to demonstrate that they have invested in implementing the recommendations of the audit or measures having an equivalent effect;	Link

TABLE A.2: EUROPEAN REGULATORY FRAMEWORK UNDER NOGOTIATION

Measure	Reference package	Entry into force (year)	Target (year)	Measure	Sector	Description	European objective and/or target	Link
Revision of the EU ETS mechanism	*Fit for 55*	*2021*	*2030*	*Directive*	*Road transport, air transport*	*The ETS, which regulates CO2 emissions from power and heat producing and energy intensive industries, now also covers emissions from aviation*	*- the aviation sector is expected to gradually reduce the free allocation of allowances until 2026, i.e., the year of their*	Link

						within the EU. Although phase 4 of its implementation has just begun, the targets underlying the system are no longer able to meet the new 2030 targets set by the EU.	*total phase-out.* *- creation of a second ETS mechanism targeting road transport and heating systems in buildings (building sector). This new mechanism is expected to enter into force from 2025 with a 43.7% cut in emissions by 2030 (compared to 2005 levels), thus increasing from the previous 33%, with an annual linear reduction coefficient of the maximum number of permitted allowances of 5.15%.*	
Social Climate Fund	*Fit for 55*	2021	2030	Regulation		Proposal of a social fund to protect citizens from possible price increases on fuels and building heating upon enforcement of the ETS in these sectors. The fund will also finance investments in the reduction of fossil fuel use and low/zero emission mobility. The new Social Climate Fund allocates specific funding to Member States to help citizens invest in energy efficiency, new heating and cooling systems and cleaner mobility. 25% of the resources of the fund will come from the proceeds of this 'second' ETS mechanism, estimated at around EUR 72.2 billion over the period 2025-2032, as well as by state co-funding for a total available amount of EUR 144.4 billion. Italy could benefit up to EUR 8 billion. To benefit from EU co-funding, Member States must submit Social Climate Plans to the Commission for approval by June 2024. Discussions with the Commission from 2023 onwards are required to ensure the proper integration of the Social Climate Plan with the respective NECPs. The plan is expected to cover the period up to 31 July 2032.		Link

TABLE A.2: EUROPEAN REGULATORY FRAMEWORK UNDER NEGOTIATION

Measure	Reference package	Entry into force (year)	Target (year)	Measure	Sector	Description	European objective and/or target	Link
ReFuelEU Aviation	*Fit for 55*	2021	2050	Regulation	Aviation	The Sustainable Aviation Fuels (SAF) initiative, which will require suppliers to add an increasing proportion of sustainable fuels to the mix used to fuel aircrafts in the EU.	Share of sustainable fuels: 2% in 2025; 5% in 2030 and 63% in 2050 (including a 28% share of synthetic fuels). Synthetic aviation fuels could help save up to 85% of emissions or more compared to fossil aviation fuel. The Commission is confident of	Link

							being able to bring almost all production within the EU (92% of requirements).	
FuelEU Maritime	*Fit for 55*	2021	2050	Regulation	Maritime	Increase the share of renewable and low-emission fuels. New obligations to be introduced for ships over 5,000 gross tonnes landing in or departing from EU ports - regardless of the flag they fly - limiting the greenhouse gas content of the energy they use and progressively reducing these limits.	The aim is to achieve a gradual shift to the use of renewable fuels to achieve 75% reductions by 2050. A special effort will be required from the passenger transport sector.	Link
Action plan to promote cross-border and long-distance passenger rail transport	*Sustainable and Smart Mobility Strategy*	2021	2040 / 2050		Railway	This action plan to promote cross-border long-distance passenger rail transport proves the Commission's commitment to achieving ambitious goals in terms of sustainable mobility and climate action. The plan provides for an ambitious roadmap with actions to be mainly undertaken in the next two years. When all actions are implemented, cross-border rail transport will become a much more attractive long-distance travel option for many Europeans across the continent.	- Better implementation of the EU's railway acquis and acceleration of interoperability; - enhancement of rail passenger transport infrastructure; - sufficient availability of rolling stock; - adjustment of training activities and certification for train drivers and staff to meet future needs; - more efficient use of networks; - adequate pricing for access to railway lines; - easy ticketing and access to the railway system; - equal conditions with other modes of transport; - public service obligations to promote sustainable cross-border and/or multimodal collective transport; - empowerment of young people.	Link

TABLE A.2: EUROPEAN REGULATORY FRAMEWORK UNDER NEGOTIATION

Measure	Reference package	Entry into force (year)	Target (year)	Measure	Sector	Description	European objective and/or target	Link
Revision of the Guidelines for the Development of the TEN-T Network	*Sustainable and Smart Mobility Strategy*	2021	2040 / 2050	Regulation	General	The purpose of the TEN-T Regulation is to create a multimodal European network of railways, inland waterways, short sea routes and roads that are connected to urban, maritime and inland port nodes, airports and terminals in Europe. The revision of the regulation aims to solve the problems of incomplete TEN-T infrastructure and poor integration of standards for the use of alternative fuels on the network.	**Four main objectives:** - Green transport by providing appropriate infrastructure to ease congestion and reduce GHG emissions and air and water pollution; - Support efficient transport by promoting multimodal transport and interoperability on the TEN-T network and better integrate urban nodes into the network; - increase the resilience of the TEN-T network to climate change; - improve the efficiency of TEN-T governance tools.	Link

						Other problems relate to network capacity and insufficient connection, as well as limited security and reliability and inadequate governance tools. The revision of the TEN-T system is presented together with the communication on the extension of the TEN-T network to neighbouring third countries.	The main objectives of extending the TEN-T network to neighbouring third countries are as follows: - ensure the consistency and efficiency of the multimodal and interoperable system between the member states and their closest partner countries; - focus on EU engagement (including financial support) in these regions.	
New European Urban Mobility Framework	*Sustainable and Smart Mobility Strategy*	2021	2040 / 2050		General	The plan is presented to support member states, regions, cities and all stakeholders in the transformation towards sustainable, safe, accessible, inclusive, smart, resilient and zero-emission mobility.	- a stronger approach to urban nodes on the TEN-T network; - a stronger approach to Sustainable Urban Mobility Plans (SUMPs); - monitor progress with sustainable mobility indicators; - attractive public transport services supported by a multimodal approach and digitisation; - safer and healthier mobility: a new focus on mobility by walking or cycling and micro-mobility; - zero-emission urban freight logistics and last-mile delivery; - digitisation, innovation and new mobility services; - climate neutral cities: resilient, green and energy efficient urban transport; - increase awareness and capacity building.	Link
Source: elaborated from the review of the European regulatory framework on sustainable mobility goals 2030-2050, prepared by CITE Working Group 2 'Sustainable Mobility'.								

The

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