



OBSERVATIONS

Regarding the Italian Government's document
"TAV TURIN-LYON QUESTIONS AND ANSWERS"
28 April 2012

Mr. President of the Council,

The elected representatives of Susa Valley, affected by the new high-speed railway project between Turin and Lyon, read the Italian Government's document "**Tav Turin-Lyon, questions and answers**" with interest and a critical spirit. This is a much debated topic over the years with a vast collection of observations for and against the new infrastructure. In any political or technical action there are no absolute truths presented, only theses and antitheses, interests, opportunities and disadvantages, with conflicting positions that often compete to identify solutions that perhaps aren't optimal, but opportune and practicable. In this particular case, your government received the conclusions of institutional proponents in favor of the project and hasn't yet taken into account the observations which local representatives, through the Technical Commission made up of university professors, economists, and territorial experts, have identified over the course of the processes to approve the various projects.

These same elected officials have interpreted the grave social tensions that this valley faces, like much of Italy, such as problems of unemployment, cuts to public resources, structural hydro-geological problems and the enduring economic crisis. The inhabitants of Susa Valley are witnesses to a series of impressive public projects realized in the territory, with all the inconveniences that they incur (construction sites, expropriations, dust, buffer zones, unkept promises).

Hardship endured in the name of a greater national and international interest. And this is the question that citizens ask themselves: is such an investment truly useful? Is it opportune in such a moment of evident economic crisis and weighty sacrifices on the part of most Italians, to destine such enormous resources to an infrastructure which, in and of itself, does not resolve the problem of labor costs, the competitiveness of our industries and freight transport which, over the years, has registered notable reductions with the link to France, and the east-west axis in general? These considerations are the fruit of careful analyses by our Technical Commission and hundreds of university professors who recently sent you an appeal to reconsider the economic reasons at the base of the initiative, in the same way that was done for the bridge over the Strait of Messina and the Olympics in Rome.

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OBSERVATIONS REGARDING THE ITALIAN GOVERNMENT'S DOCUMENT "TAV TURIN-LYON, QUESTIONS AND ANSWERS"

Introduction

On March 9, 2012, the Italian Government released a document on its official website on which, by answering 14 questions created by the same Government, the reasons for the realization of the new Turin-Lyon high-speed/high-capacity railway line were given.

The answers provided are inappropriate, imprecise and do not clarify the motivations in a satisfactory manner or with the rigour and quality one would expect, given the cost and impact of the project. Pending the start of a serious evaluation based on objective data and verifiable evaluation criteria using scientific methods, we present a critical reading of the contents of the Italian Government's document in the attached file.

The analysis is the result of a collective effort by the authors who are on the "Turin-Lyon" Technical Commission of the Comunità Montana for Susa Valley and Sangone Valley, as well as the contributions of external experts from various fields. It involved a few hundred hours of donated personal time without any monetary remuneration.

1) Why did the Government reconfirm the Turin-Lyon as a strategic project?

The Italian Government's document affirms that: "The model of development followed by the EU is based on competitive growth and the role of the Union in the world economy; an inclusive and sustainable growth essential for cohesion between member states and thus for reducing geographical [a word is missing, probably "distance"] (between states) and social marginalization (between citizens)".

It is important to note that such a model of competitive growth shouldn't be in contradiction with the innovative push of the European Union toward a net reduction in the consumption of primary resources and waste production, as highlighted by the European Environment Agency [1-1] and the Sustainable Europe Research Institute [1-2] reports and the European Action for Resource Efficiency [1-3] strategy. Within this context, the expectation, on the part of the proponents, of a net increment in freight traffic in the next decades seems strongly asymmetrical with respect to European priorities. The same desire expressed in the Italian Government's document to contribute "to the EU objectives regarding climate change with the reduction of CO₂ emissions (probably stands for CO₂) of transportation" seems in sharp contrast to the energy costs of the project (see point 10) as well as with EU strategy 20-20-20 [1-4].

It's true that the European Union considers that priority project no. 6, ex- Corridor 5, "Lyon-Trieste/Koper-Lubiana-Budapest-Ukraine border" (not Lisbon-Kiev as affirmed in government declarations) [1-5] is part of the 30 priority projects in the Trans-European Transport Network (TEN-T), "essential for the cohesion of member states", but it is also true that Europe has never asked Italy to realize a high-speed line on this route [1-6].

Decision no. 884/2004 of the European Commission (EC) regarding TEN-T establishes instead that, with regards to TEN-T priority project no. 6, investment should be on the regular railway axis, unlike what was expressed in the same decision for the priority high-speed railway axes: axis no. 2 Paris-Brussels-Amsterdam and Paris-London; axis 3 of southwestern Europe (direction Lisbon, Madrid, Bordeaux, Tours); axis no. 4 east (direction Paris, Luxembourg, Mannheim, Betuwe).

In addition, the TEN-T priority projects have promoting links between various European countries as an objective, favoring modal transfers on more ecological carriers and the sustainable development of transportation, guaranteeing territorial cohesion and the inter-operability of the various transport systems. That this should occur through the construction of a new high-speed line or through improvements on the existing line is absolutely irrelevant to the European Union [1-6].

In fact, the EC, having estimated **a total cost for the realization** of the 30 projects at €600 billion, has recommended from the beginning that the priorities of single projects be submitted to periodic checks of an economic-financial, technical and environmental nature, to affirm which axis to concentrate on over



time.

In citing the **cost of transportation** in relation to the monetary value of the finished product placed on the market – higher in Italy where it increases by around 20% compared to other European countries – the Italian Government's document suggests that the construction of the base tunnel will improve the situation. This affirmation is also not backed by technical arguments. The idea that the construction of a tunnel, diminishing the maximum slope of the railway route with respect to the actual line, involves a decrease in transport costs between Piedmont and Rhône-Alpes is incorrect. Once the investment and maintenance costs are taken into account, with reference to the total quantity of goods transported in the entire life cycle of the infrastructure, the transportation costs with the new tunnel will be higher than the actual one, to the extent that it will have to be subsidized even when fully operational [1-7].

Apart from this, there is an aspect of a more general character which prevents recognizing the logical coherence of the arguments at the base for the realization of the project. Simulating the next forty years with an exponential increment in the quantity of goods transported – an essential condition to sustain the need to build a new line – relies on a series of deceptions. Among these is the supposition that the percentage increase in the weight of the goods transported will grow more quickly than the percentage increase of the GDP by about 50% in the next forty years during which there should be two consecutive doublings. Now, apart from some standard deviations, this would inevitably mean that the percentage incidence of the cost of transportation on the cost of the finished product would rapidly rise (at least hypothetically, notwithstanding the current situation of energy sources, that the unit cost of transportation is precipitating downward). Starting from a situation in which, with a unit cost of the product at 100, 20 would be attributed to transport, at the first doubling in around 2030 the respective cost would be equal to 200 and 60 respectively, thus corresponding to a percentage of 30; in 2050, with the second doubling, respectively equal to 400 and 180, the consequential percentage would be 45%: values for transportation costs, that are outside of any commercial or competitive logic.

Bibliography and notes

[1-1] EEA - <http://www.eea.europa.eu/themes/waste>

EEA - <http://www.eea.europa.eu/it/themes/waste/about-waste-and-material-resources>

[1-2] Overconsumption, Our use of the world's natural resources, SERI 2009, <http://old.seri.at/documentupload/SERI%20PR/overconsumption--2009.pdf>

[1-3] A resource-efficient Europe: http://ec.europa.eu/resource-efficient-europe/index_en.htm

[1-4] Europe 2020 targets: http://ec.europa.eu/europe2020/reaching-the-goals/targets/index_en.htm

[1-5] Mid-term evaluation of the TEN-T Programme (2007-2013). Final Report March 2011. European Commission - Directorate General Mobility and Transport

[1-6] Freight Transport Logistics in Europe – the key to sustainable mobility - COM(2006) 336 -

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2006:0336:FIN:EN:PDF>

[1-7] That these are the terms of the situation has always been noted by anyone who has addressed this issue in an un-propagandistic manner, inside the Technical Commission or the CIG or any other venue. In December 1999, the president of the FFSS, Claudio Demattè, spoke at a conference held by Pininfarina at the Turin Industrial Union, and responded to two questions asked by La Valsusa journalist Bruno Andolfatto in this way:

1. regarding the transport of goods towards France transferred onto rail after the closure of the Mont Blanc highway pass: "We tried to add an extra 50 freight trains a day on the existing Fréjus railway line and we were able to fill only two. We reduced the costs for the line by 25% and even this operation was useless. The point is that, at this moment, the railway line toward Lyon isn't collapsing, in fact the contrary is true."

2. regarding the profitability of the new Turin-Lyon railway line project: "Economically it's a disaster. And strategically it serves no purpose."

The two responses were published in a prominent way in the article: Bruno Andolfatto, *Alta velocità, una settimana di parole*, [High speed, a week of words] La Valsusa, 16/12/1999.

2) What are the costs?

The **low-cost project for €8.2 billion** referred to in the Italian Government's document has no defined project developed. In fact, in the text of the January 30, 2012 Accord between Italy and France, there



is no sign of a new assessment or of any financial commitment for European financing. It is limited to indicating the new percentage of contributions by the two contracting countries (57.9% for Italy and 42.1% for France), to the point that in art. 18 of the accord it is postponed until the “definitive project to have a cost estimate by a third party”. The Presidency of the Council gives credence to a new official estimate for the costs of the project and an economic-financial plan which in reality hasn’t been made public.

One can deduce that the €8.2 billion, of which a hypothetical **40% (€3.28 billion) will be paid by the European Union**, is without foundation. No one has explained how a bilateral accord, not signed by Europe could mean a commitment to spend almost €3.3 billion.

The €8.2 billion amount doesn’t appear in the preliminary project of the international stretch, drawn up by LTF and approved by prescription by the CIPE, which indicates (on page 261/261 of document PP2 C30 TS3 0077 0 AP NOT – General description) a value in the economic summary of €10,258,818,000 plus IVA (Italian side) and plus VAT (French side), with reference to January 2010.

It should be underlined that even in the most favorable European financing hypothesis, at 40%, and thus with a cost attributed to Italy (hypothesizing government sources) of only €2,848 billion, in the Italian Government’s document’s calculations the following are not considered: a) the revaluation of costs between January 2010 and March 2012; b) the re-evaluation of prices from the time of the approval of the definitive project and its completion; c) the monetary cost of remunerating the capital loaned to finance the project; d) IVA.

Moreover, the choice of realizing only the base tunnel as a first phase doesn’t allow for achieving the anticipated results, as is better elucidated in point 4.

3) What is the economic importance of the area linked by the Turin-Lyon?

In the Italian Government’s document justifying the intervention they refer to the **macro-region Alp-Med** (Piedmont, Liguria, Aosta Valley, Rhône Alpes and PACA) which consists of 17 million inhabitants and 1.5 million businesses with an exchange of around €10 billion per year.

In the same document the following is not explained:

a) why the total traffic of goods from 1999 to 2008 (pre-economic crisis) between Italy and France went from 48 to 45.3 million tons per year while it has increased on the Italy-Switzerland and Italy-Austria routes (Source: Federal Department of Environment, Transportation, Energy and Communications – Federal Office of Transportation – Helvetian Confederation);

b) why the railway traffic between Italy and France, though subsidized economically, has gone from a value of around 10 million tons per year pre-2000 to around 6 million tons per year in 2004 (before the modernization of the tunnel on the historic line), to around 5 million tons per year in 2008 (before the economic crisis), and more definitively to the current (2010 data) 3.9 million tons per year. (Same source as previous point.);

c) why the forecasts made by LTF/RFI, expressed in the period 2004-2030, foresee for the current period a volume of traffic 2.5-3 times higher than the amount in reality today (Source: *Quaderno 2 – Scenari di traffico Arco Alpino* [Traffic scenarios in the Alpine Arch] – Observatory for the Turin – Lyon railway link);

d) why the mode of operation of the new line foresees volumes of traffic directed toward or coming from the high-speed/high-capacity Turin – Milan line that are much higher than those used in the planning of the already noted high-speed/high-capacity Turin – Milan line (255 trains/day, of which 191 freight, forecast according to the NLTL project [3-1] when there are 160 trains/day in the Turin-Novara stretch and only 60 trains/day in the Novara-Milan stretch of which only 6 are freight) [3-2].

Bibliography and notes

[3-1] Italferr document: “Modello di esercizio della Nuova Linea Torino Lione Tratta Nazionale” [Models for the operation of the New Turin Lyon Railway National Portion], D040-00-R-16-RG-E-S004-001-A, June 2010



[3-2] Italferr Communication, June 7, 2007, prot. N. ANW.F0.0055644.07.U



4) What are the key points in the new accord?

The Italian Government's document affirms that the construction will take place in **functional phases**, foreseeing that each portion, once realized will reach full function as soon as it's completed. The intervention forecast by the government foresees the base tunnel as the first step without modifying the stretches leading to it on the Italian side and on the French one. In this way, the tunnel, even when it is fully functional, will not be able to fulfill all of its functions as this is conditioned by the rest of the line, the capacity of which would remain unchanged; the cost of realizing the base tunnel would be, in contrast, paid for entirely. The planned phase is thus not at all "functional".

The **new Accord**, as already mentioned (see point no. 2), established in effect only the new percentage repartition of the costs between Italy and France and it is significant that the President of the Council uses the conditional: "*the EU **could** provide financing for a total of 40% of the total cost*".

Reading art. 1 of the Accord is useful: "*The present accord doesn't constitute an additional protocol to the ones laid out in article 4 of the Accord signed in Turin between the Italian and French governments on January 29, 2001. In particular, it doesn't provide as its objective permission to begin work definitively on the common Italo-French portion, which will require an additional separate protocol, taking into particular account the definitive participation of the European Union in the project.*" This confirms how the effective operation of the same bilateral commitments are subordinated by future European decisions.

It must also be remembered that the European Union will not conclude its legislative process on the Guidelines for TEN-T 2014/2020 and the budget decisions of Connecting Europe Facility before 12/15 months starting from spring 2012, moreover on projects whose state of advancement is highly heterogeneous in both France and Italy. **The debate about how much and what should be financed has yet to begin.**

Furthermore, the European Commissary for Transportation Siim Kallas, in an interview with *Italia Oggi* on February 29, 2012, declared that multi-year funds destined to the European priority axes *could* increase from 8 to 31.7 billion Euros for each intervention. This amount divided by the 30 priority European projects implies an average of one billion Euros for each operation.

We are reminded, finally, that it is always possible **to renounce on a European project without penalties** or sanctions as is affirmed in point III.4.2.1 of the document regarding the concession of financing [4-1]: "*In duly justified cases the beneficiary can at any time renounce, entirely or in part, the financial contribution informing the Commission by writing at least 60 calendar days in advance and declaring the motives for the impossibility of continuing the action related to the contributions, without having to pay any indemnity.*" This same possibility was recently utilized by Portugal to cancel the high-speed Lisbon-Madrid line (March 2012).

Bibliography and notes

[4-1] The Commission for the European Community – Decisions on the concession of financial contributions for measures, 5.12.2008, regarding the concession of a financial contribution by the Community related to projects of common interest "New Lyon-Turin railway link – Common Franco-Italian portion of the international section". 2007-EU-06010-P.

5) Was the project discussed and approved by local communities?

Declaring that "*due attention was given to the communities' requests*" and that "*183 weekly work sessions were held*" on the part of the Observatory doesn't demonstrate anything.

After having committed itself to excluding the project from the "*Legge obiettivo*" legislative procedures in order to guarantee accurate information and the involvement of public authorities and inhabitants during the Institutional Conference at Palazzo Chigi in 2005, the Italian Government retraced its steps in 2009 and once again applied the "*Legge obiettivo*" (L. 443/2001) to the project, thus excluding all local authorities from the proceedings with the exception of Piedmont Region.

Therefore, no affected Municipality could effectively or significantly participate in the formal



procedures leading to the definition, evaluation and endorsement of the projects.

A general plan for the project does not exist, only portions of it at different levels of advancement. On the French side, the inquiry about the public utility of one of the project hypotheses is still in progress.

For the base tunnel and the international part, there is just a preliminary project, approved by the Italian Government only and without any financing (Del. CIPE 57/2011). The environmental assessment's evaluation for the Italian portion has been at a standstill for months.

Special Commissioner Architect Mario Virano was assigned the task of "*temporarily meeting the need to coordinate the activities among public services*", and not that of substituting "*the Ministries' duties, determined by law*" (D.P.R. August 16, 2006, L. 400/88). The "*Observatory for the Turin – Lyon railway line*" has no responsibilities pertaining to the definition, drafting, evaluation or endorsement of any project whatsoever (D.P.C.M. March 1, 2006).

To date, the projects presented have been developed autonomously from the French and Italian railway operators. None of these projects ever underwent a preliminary evaluation or a final endorsement, recorded in official documents, by the Observatory. No activity or document coming from the Observatory is binding with respect to the projects.

Therefore, the activities carried out by the Observatory serve a purely political purpose.

The document "*Points of agreement towards the planning of the new railway line and the new transportation policies for the territory – Pracatinat, July 28, 2008*" written by the Special Commissioner, (a document often improperly referred to as "the Pracatinat Agreement"), contains a series of general indicators and best wishes for the most part disregarded.

This document cannot be called "an agreement", as it was not signed by any of the interested parties.

It should also be remembered that the municipalities that did not express their support of the new railway line a priori were excluded from the Observatory's meetings as of January 2010 [5-1]: "*...when it comes to the new Turin – Lyon railway line, the political-institutional profile of the new Comunità Montana is not considered appropriate to represent the pluralism of all local communities within the territory.*"

Therefore, the principle criterion for admission to the Observatory's meetings by municipalities directly affected by the railway line was thus set down: "*Municipalities [...] that explicitly declare their desire to participate with the aim of realizing the project in the best possible way, within the scope of protecting and improving the territory and adhering to the European schedule.*" Twenty-five municipalities opposed to the project are de facto excluded from the Observatory. On the other hand, municipalities whose areas are not affected by the project take part in the Observatory and are entitled to compensation.

The shift in the layout from the left to the right bank of the Dora river, determined after 2006, did not occur as a result of planning with members of the Susa Valley, which has repeatedly requested a debate on the real necessity of the project, but emerged from the decision to include a stop in Orbassano's railway yard.

As for the proposal of compensating the territory in exchange for its support of the project, this could only be acceptable if the line were effectively deemed necessary.

Bibliography and notes

[5-1] Presidency of the Council of Ministers, Media release, January 8, 2010

6) What will be the main benefits of the Turin – Lyon once it is realized?

The **average gradient** of the Bussoleno section of the existing line (altitude 440 m) and the Fréjus tunnel's peak (altitude 1297 m), is 18.6 per thousand. In particular:

- the ascending section (even track) has a gradient that is always less than 26 per thousand with the exception of an 871-metre segment near the entrance to the Italian side of the Fréjus tunnel, where it reaches 30 per thousand;



- the descending section odd-numbered track) exceeds -26 per thousand over a total area of 15.297 km; the steepest point is between Chiomonte and Meana di Susa where the gradient reaches -31 per thousand for 955 metres.

On the French side, the **average gradient** from Saint Jean de Maurienne (altitude 534 m) to the peak at the Fréjus tunnel (altitude 1297 m) is 22.4 per thousand. The gradient exceeds 26 per thousand for a total of 11.628 km; it reaches 31.3 and 31.4 per thousand in two segments, 95 and 111 metres long respectively, which aren't relevant because they are shorter than the length of a train.

The value "currently 33 per thousand" declared in the Italian Government's document is incorrect.

Finally, we must remember that 29% of the line today between Bussoleno and Saint Jean de Maurienne already has gradient inferior to the 12.5 per thousand promised in the new Turin – Lyon line.

The "halving of **travel time** for passengers from Turin to Chambéry from 152 to 73 minutes" is incorrect. The existing fastest TGV (train 9240) reaches Saint Jean de Maurienne in a little less than 73 minutes leaving from Turin Porta Susa and following the same stretch of railway as the existing line which continue to be used even in the low-cost version. It would mean that the sixty-odd km of the new section would have to be done in just a few seconds!

In reality, at least 28 minutes are necessary for a total of 101 minutes between Turin and Chambéry. The declared time saved is reduced to only 49 minutes, achieved also by cancelling stops in Oulx (2 minutes), Bardonecchia (2 minutes) and Modane (6 minutes) and related acceleration and deceleration. Taking into account the only stop left in the valley (Susa, 2 minutes), the net time saved would be a mere 39 minutes compared to the 79 declared by the government.

The affirmation of reducing travel time for passengers from Milan to Paris from 7 to 4 hours also appears to be imprecise. Currently the fastest TGV between Milan Porta Garibaldi and Paris takes 7 hours and 19 minutes, of which 4 hours and 49 minutes are needed for the Milan – Turin Turin Porta Susa and Chambéry – Paris routes, which are already operating and not being considered in the low-cost option. The Turin Porta Susa – Chambéry section cannot contribute to a reduction in travel time for the reasons mentioned above.

A reduction in travel time between Paris and Milan could only occur if the entire Turin – Lyon line were completed, that is, not before 2035. Nevertheless, if the existing Paris – Milan TGV line were to be put on the new high-speed/high-capacity Turin – Milan line, operating since 2009, it would be possible to reduce travel time by at least 40 minutes immediately, without any additional alterations to the route. The TGV must instead travel on the historic Santhià – Vercelli – Novara route because the signalling and safety systems of between the RFI and SNCF are not synchronized.

The solution to this problem of interoperability represents a main and less onerous request from the European Union with the aim of achieving the objectives of the TEN-T programme.

With regards to the capacity for freight travel, the increase forecast in the Italian Government's document doesn't depend upon the construction of the base tunnel but on the premise of using trains that are the equivalent of 750 m long. This solution necessitates 750 metre-long transport parking tracks on the entire railway line, available every 25 km for operational and security reasons, especially on the mixed passenger – freight lines which is in question here. Such infrastructure is almost inexistent on the entire ordinary Italian railway network.

In terms of an increase in capacity, it is furthermore clear that this would be limited to the existing amount even when the base tunnel is realized, as its traffic would be moved on the historic line.

The affirmation related to halving **operating costs** isn't justified by any scientific reasoning and, in any case cannot be exclusively linked to the hypothesis of an increase in the tonnage transportable by each train. It should be underlined that the operational costs will be influenced by energy consumption (see point 10 below) and by investments for the acquisition of ad hoc rolling stock (multi-system locomotives and freight cars) which have limited availability today.

The Italian Government's document predicts that **600,000 trucks** will be removed from the "*fragile alpine environment*", thanks to the tunnel's construction,. This data is backed by no verifiable analysis



and is hardly credible.

In 2011, the traffic of lorries on the A32 was 734,670 units (Source: SITAF), it is very unlikely that this main arterial road will be practically closed to freight traffic, also because a second conduit of the Fréjus highway tunnel is currently under construction. On the other hand, the LTF project estimates a traffic reduction of only 12.5% less trucks than in 2004, to be achieved by 2030 [6-1]. Since 1,130,965 lorries crossed the border in 2004 (Source: SITAF), the reduction would be of 142,000 units.

The Italian Government's document describes the new layout as a "*lowland line*", in fact the railway line has to cover a difference in altitude of 500 metres - from Turin to the slope of the base tunnel - compared to the present 1,000 metres.

The construction of the base tunnel would cause an **increase in the speed of freight trains** and a reduction in travel time that would represent a minor amount compared to current parameters, so much so that the EU states:

"Rail freight transport suffers from a lack of reliability and efficiency, caused, inter alia, by insufficient technical and administrative interoperability, and by the priority given to passenger trains on lines with mixed traffic. Action is needed to enhance interoperability and reduce delays generated by mixed traffic" [6-1].

The **main benefits** listed in the Italian Government's document cannot be quantified, as there isn't a cost-benefits analysis, neither for the full or for the low-cost proposals.

For the moment, only economic summary tables concerning the preliminary phases of the international and national sections are available. (LTF 2010 and RFI 2011).

The only available information is found in an article by Maffii and Ponti published in La voce.info 26/07/2011, where the following salient points are presented:

1. a cost-benefit analysis cannot be developed: all the data utilized has not been communicated and, therefore, it is impossible to check for accuracy;
2. the methodology employed was primarily French, but it is a method that does not unequivocally define how to calculate the consumers' surplus, which is a key variable containing most of the benefits;
3. external costs from the circumstantialities of goods (one of the main benefits in the project) seem to be disproportionately high. It is impossible to verify the utilized data, but they are certainly not consistent with EU guidelines (CE Delft, 2008);
4. estimated total benefits derived from time saved by rail freights seem to be possible only with a saving of 7.89 hours per ton (the calculation is not present in the study, we worked it out backwards). The value seems attainable with difficulty. As the costs-benefits analysis refers to the original project, it is necessary to re-think the demand assessments and make an estimate in light of the new project "in phases", where priority is given to the construction of the base tunnel.
5. It is common knowledge (6-2) (6-3) that costs for large transportation infrastructures costs in the planning phase are regularly undervalued, while benefits are overestimated.

The **total lack of any financial analysis**, namely the cost-benefit ratio should be noted above all. Such an analysis has not even been announced. In a period of extremely scarce public resources, this absence seems to be peculiar to the point that one might infer a very high cost-opportunity for public funds, leading to a further reduction in the priority of all infrastructures having a low rate of return for investment.

Moreover, this absence "disguises" a very important question in traffic predictions: what will the toll's fee be, both for the new and for the historic lines? If, in fact, toll fees will be used to pay off even a small share of investment costs, traffic will tend to return to the historic line, which is already paid for.

Finally, the available news makes one believe that the official costs-benefits analysis has been conducted, **notwithstanding the extraordinary and unacceptable optimism** described above, based upon an internal rate of return of around 5%, a rate that by any ranking would position the project as marginal or, in the case of limited funds, as unfeasible.

That is, with a view to prioritize spending, the project seems even less defensible than when considered



in absolute terms.

Similar criticisms can be found, for example, in "Management of Public Institutions," Borgonovi, Fattore and Longo (EGEA 2009), where a cost-benefit analysis dedicated to the Turin – Lyon over the course of 40 years is always negative.

The only document on the subject available today [blogtorinolione.ltf-sas.com] is the introduction, signed by Architect Mario Virano, to the yet unpublished Workbook no. 8 of the Technical Observatory. It is interesting to notice that a cost-benefit analysis is not considered a useful scientific analysis prior to public determination: *"It is evident that the scenario encompassing the realization in phases, wherefrom essential investments are advanced and concentrated and benefits are maximised, without fail will improve the cost-benefit analysis results, but this empirical evidence needs to be scientifically verified and proved in the next months."*

In conclusion, a cost-benefit analysis has to be considered not as a static evaluation but as a side instrument in refining the project, it proceeds further along in the light of economic, financial and engineering technical requirements, making use of the suggestions that emerge through discussions within the Observatory"

It's as though, being aware of a low rate-of-return (less than 5% in optimal conditions) and of a low priority, a rebuttal in advance of the unavoidable criticisms that would follow the publishing [of the workbook].

Bibliography and notes

[6-1] Freight Transport Logistics in Europe – The key to sustainable mobility - COM(2006) 336 - <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2006:0336:FIN:EN:PDF>

[6-2] De Rus G., Nash C., 2006 – In what circumstances is investment in HSR worthwhile? 4th annual conference on railroad industry. Madrid

[6-3] Bent Flyvbjerg, Oxford University - <http://flyvbjerg.plan.aau.dk/>

7) France is further ahead than Italy in the excavation. Nine kilometres of access tunnels have been excavated. When will the work for the Maddalena exploratory tunnel start and when will the main work begin?

Up until now, 3 access tunnels, for a total of 9 km, have been dug in France with geognostic aims, they should be employed as service galleries for the hypothetical base tunnel. The fact that this work has been carried out does not imply that all authorizations for the new line's construction has been obtained in France.

On the contrary, within the VIA procedure that was opened only on October 11, 2011 and that has to give consultative advice, the Environmental Authority of the French General Council for the Environment and Sustainable Development asked RFF to update the figures of freight traffic, to evaluate the effects of the realization in phases on freight and passenger traffic and to provide a complete, detailed picture of the economical returns for each phase, in order to make both the economical evaluations in the "environmental impact study" (presented on 11/10/2011) and the "socio-economic evaluations" in the 27/10/2011 study consistent.

Besides, many doubts were also cast by the *Autorité Environnementale du Conseil Général de l'Environnement et du Développement durable* in a document dated 7/12/2011.

As we can see, many uncertainties about the realization of the new line still remain in France as well.

Moreover, we point out an inconsistency regarding the length of the work period between the Government (which foresees a 10-year span) and the preliminary project of the whole international section which indicates a duration of 94 months.

8) Is the new Turin – Lyon railway line really necessary, in light of the decrease in traffic on the historic Fréjus route?



All data described in point 8 of the Italian Government's document is **incorrect**. As we have pointed out above (see the details of point 6), the new track layout will not be a "lowland line" as it will have to go overcome a difference in altitude of 500 metre in any case.

The flows of commerce at the Italo-French borders from Ventimiglia to Mont Blanc was a total of 42.5 million tons in 2010, a reduction of 12% compared to 1997. The amount crossing Susa Valley alone was 15.4 tons, less than half in 2010 (-57%) compared to the traffic in 1999-2002, (1999 was the year of the Mont Blanc tunnel accident.) and around **33-34%** less than the years immediately preceding (1997-1998), as demonstrated in the AlpiInfo data [8-1], upon which the European Union relies to monitor the movement of goods at alpine passes. (See the diagram below).

Italo-French traffic data indicated in the Italian Government's document included passages at Ventimiglia which have nearly doubled since 1994. Nonetheless, the AlpiInfo data doesn't attribute this flow to commerce between Italy and France as it is mainly linked to movement to and from the Iberian peninsula. It is unlikely that this traffic is interested in the Turin – Lyon route because they would have to lengthen their trip to the Fréjus and pay the AF (railway highway) service toll instead of simply the Ventimiglia highway toll. In addition, the government doesn't foresee any investment on the Ligurian border railway route (still a single track for about 20 km) notwithstanding the fact that in 2010 freight traffic (by rail and road) was around 20% higher than what was registered in Susa Valley.

On the existing double track Turin – Lyon railway line up to 32.1 million tons of goods can be transported per year (theoretical maximum capacity indicated by the Italian Railway Service [8-2]). The real capacity (after maintenance and technical delays are considered) is confirmed at 20 million tons per year by the LTF (French Railway Service).

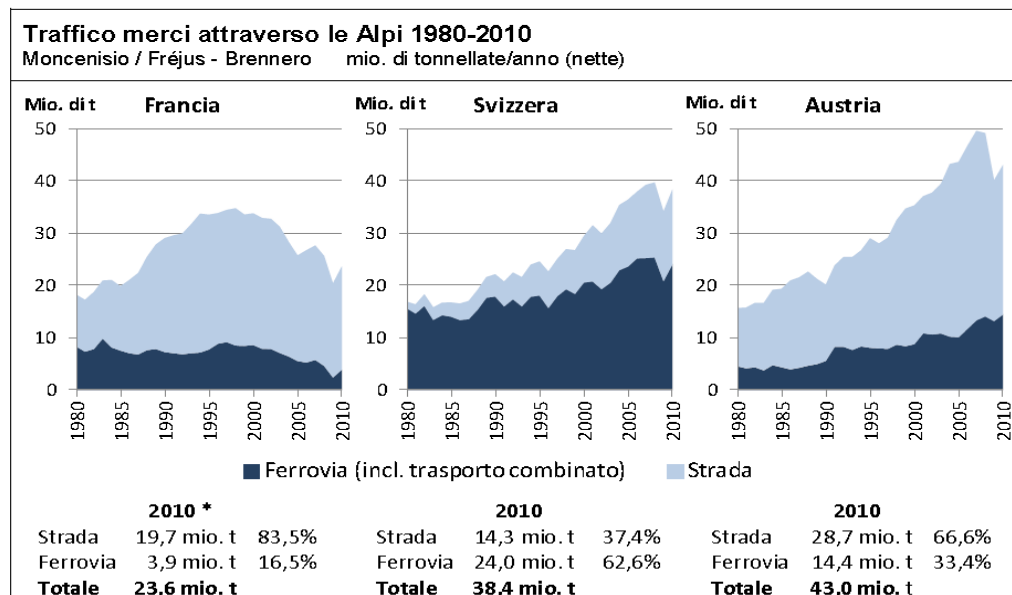


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Ufficio federale dei trasporti UFT
Divisione Finanziamento

Alpinfo 2010

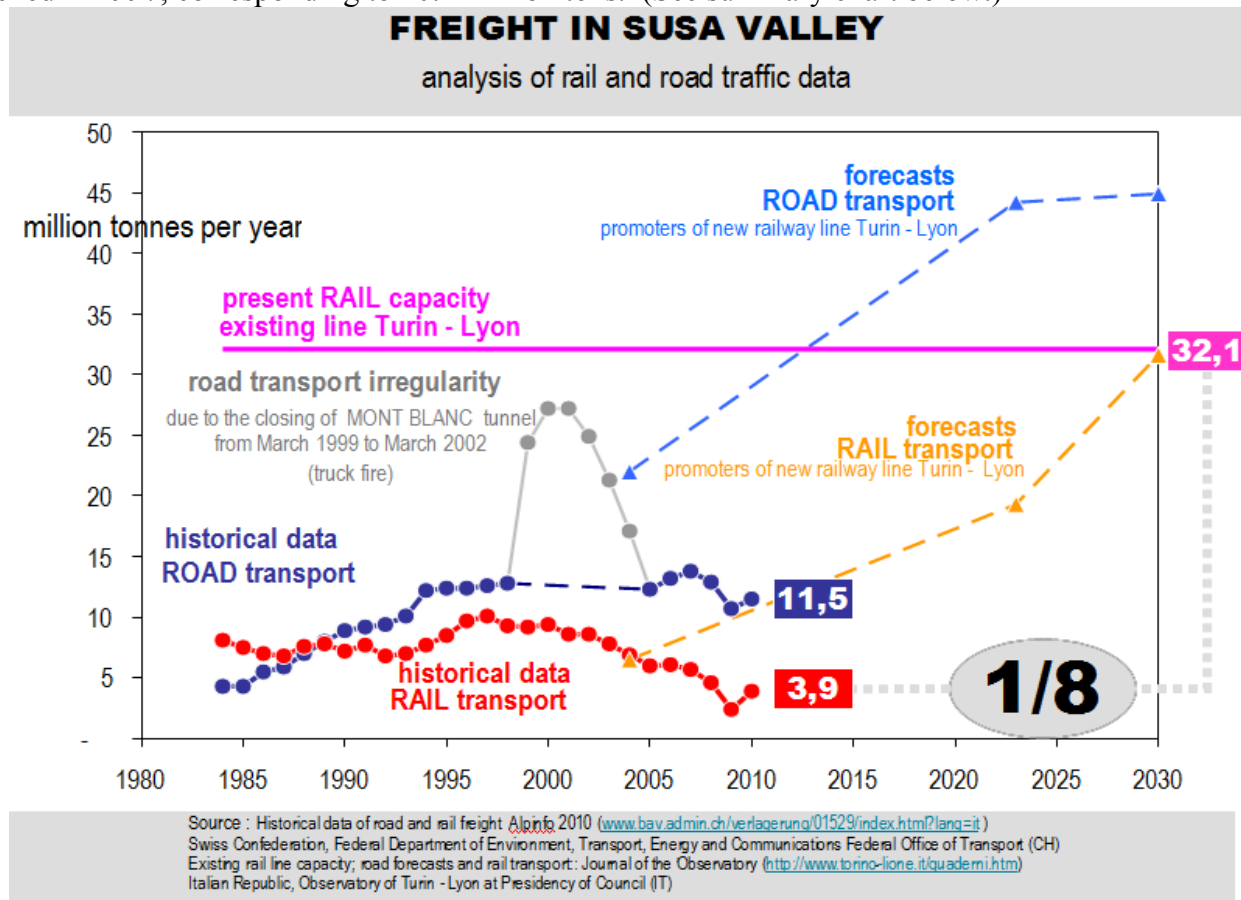
Traffico merci su strada e per ferrovia attraverso le Alpi



The Fréjus railway tunnel in the Susa Valley, through the lowering of the tracks, was recently adapted for clearance of UIC B1 (or GB1) gauges ideal for railroad motorways of large dimensions: the



expenditure was a little less than €400 million. Therefore, freight traffic in the existing tunnel could currently be 8 times the current amount (3.9 million tons in 2010) and 3 times more than the peak reached in 1997, corresponding to 10.1 million tons. (See summary chart below.)



The transit of "*containers nowadays in use for freight transport*" (as declared in the Italian Government's document) is hindered by gauge limits on the existing railway lines connecting Italian ports to the base tunnel in project, penalizing limits for which there are no known planned improvements.

Current **passenger demand** is met by 80 local trains and 6 international trains daily.

In addition, according to the model elaborated by LTF and presented in the Observatory, the effect of the tunnel on modal allocation would be marginal, a conclusion already reached by a previous study carried out by *SETEC Economie* on behalf of *GEIE Alpetunnel* (the predecessor of LTF).

Finally, it should be noticed that the realization of the base tunnel would introduce new restrictions with respect to the existing line. The application of high-speed project standards to allow the transit of freight trains would imply the following:

- use of new locomotives suitable for the different voltage supplies planned (alternating current at 25,000 volts for the high-speed, direct current of 3,000 volts in Italy and 1,500 volts in France);
- new freight wagons, suitable for transit on a mixed high-speed passenger lines, complying with safety measures.

Due to the limited availability of multi-system locomotives and the lack of appropriate freight trains, today the passage of freight trains on high-speed tracks is prohibited. Apart from very limited sections, no country in the world permits mixed high-speed freight and passenger railway lines. In particular, freight in France does not travel on high-speed tracks. In effect, the special multi-system locomotives and suitable wagons would only be necessary to cross the alpine section of the new line.



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9) Will work on the new line provide employment? And in the operative phase?

The French **Démarche Grand Chantier** and the L.R. n.4/11 of the Piedmont Region do not provide any guarantees for employing local firms and/or workers, as they have to comply with European and Italian laws on tenders (Directive 2004/17/CE e 2004/18/CE e D.Lgs.163/06), that foresee international bids for public tenders, without limits regarding the nationality of the firms or its workers.

The above factors are particularly relevant for:

- all major work for the base tunnel, with high technological content and, therefore, restricted to a few specialized building firms that employ foreign-made machinery and their own highly-qualified staff.
- the supply of building material (cement and steel) are increasingly provided by emerging countries able to offer highly competitive prices.

The businesses indicated in the Italian Government's document for potential territorial benefits ("local accommodations and restaurants", "building improvements") have laughable economic returns no long-term effects and a scant added value in terms of quality. Promoting Susa Valley's tourism sector can be achieved through much more limited investments with more effective and long-lasting results. Vice versa, the impact of the presence of construction sites over years will risk definitively compromising the flow of local tourism.

In the Italian Government's document we also read: *"In Italy there will be more than 2,000 people directly involved in Italy in the construction of the new line: 4 thousand employed indirectly ... 5 years after it becomes operative the initiative will create more the 500 jobs in Italy."*

If we acknowledge the low cost hypothesis (corroborated by the Italian Government's document but not yet formalized), the employed workers would be no more than 700, instead of "more than 2000" (a error exceeding 186%). This data can easily be inferred from the preliminary LTF project (General Description Report page. 235/261), when we consider only the building sites actually involved (Maddalena access, Val Clarea access, base tunnel's eastern access, work sites in Susa, industrial area at Susa's inter-modal terminal, western access to the Orsiera and Cantalupa tunnels) and ignore the work sites not involved in the low cost hypothesis (eastern access to the Orsiera, the Chiusa Industrial Area, Prato Giò and Carrière du Paradis) in their correct geographical reference.

If we acknowledge the ratio 1 to 2 between workers employed directly and indirectly, as indicated in the Italian Government's document, we can deduce for indirect workers a mean value of 1,400 units, for a total of 2,000 people instead of 6,000.

Taking into consideration the low-cost option, the total demographic growth in the Municipalities affected by the excavations, building sites, transportation, dust, pollution etc... has been in stable equilibrium for the last 10 years.

Births and deaths are compensated by a 0.5% rate (93/18228), while the real balance is maintained by 759 immigrants and 633 emigrants a year, figures practically matching those of people that would be employed in the building sites (700 people). Considering the fact that workers involved will have to be qualified, the Italian Government's document underestimates the fact that the area could be subject to impoverishment, rendered inhospitable and sacrificed over the course of construction should immigrants decide to move away and emigrants increase.

Under these circumstances, a decrease in the population of a few thousand people could easily be plausible, with all the related fall-out on the local economy.



Piedmont Region - Extract from Demographic database, Cities of : Mattie, Bussoleno, Susa, Mompantero, Giaglione, Meana di Susa, Gravere, Chiomonte											
Years ->	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average
Residents	18108	17964	18029	18169	18235	18249	18305	18419	18446	18359	18228
Difference Dead – Births	-91	-103	-128	-104	-92	-103	-63	-72	-94	-78	-93
Immigrants	738	581	786	863	742	701	817	880	781	701	759
Emigrants	625	544	605	613	580	590	698	710	664	703	633

It is impossible to work out how the figure of 500 permanent jobs within 5 years of full operation was estimated. It is not clear if the data is related to the whole Turin – Lyon line or only the first operational phase. It's important to remember that there is a plan for a station in Susa with a bar, a newsagent, a restaurant, some shops, a tourist information office and a security area guarded by necessary staff, in the low-cost project. It is unlikely that the personnel employed in these activities would amount to such a high figure.

If the EU subsidizes 40% of the project, the investment cost for Italy would be €3 billion. An exorbitant public expense in exchange for only 500 permanent jobs. It should be remembered that the "*Riforma Gelmini*" (the School Reform by Italian Minister Mariastella Gelmini in 2011) eliminated 140,000 jobs in order to save €6 billion.

10) Is the project energetically sustainable?

The Italian Government's document states that *"following a specific study on the "carbon balance" of the life-cycle of the project, it is calculated that when the line will be operating at full capacity the yearly reduction of greenhouse gas emissions will be 3 million Teq of Co₂, [probably stands for CO₂] that is the production of greenhouse gases of a city with 300,000 inhabitants"*.

It is immediately evident that, based on the government's assertion, a reduction of the equivalent of 3 million tons of CO₂ solely in the Turin – Lyon segment would correspond to an average yearly saving equivalent to 1 million tons of petrol or (1 MTEP), equal to 0,6% of Italy's energy consumption. Such a saving presumes an initial consumption that is clearly higher, equal to not less than 1% of Italian energy consumption, a value referred only to Susa Valley seems hardly plausible. In fact, for a valid comparison, the consumption of the approximately 700,000 lorries passing annually through the Fréjus motorway between Torino and the French border consume 18,000 TEP.

As to the *"specific study on the carbon balance"*, it has not been published to date. Large projects require elaborate energy balance studies that are complex and require scrupulous and verifiable analytical rigour: which at this stage doesn't appear evident for the NLTL (New Lyon – Turin Line).

At present, there doesn't seem to be a general consensus in the calculation of estimated energy costs per **passenger per km** on high speed lines. Even the European High Speed Rail report [10-1, p. 91-92] highlights different views between the European Environment Agency [10-2], which considers high-speed lines more expensive than the conventional ones, while other Spanish sources believe they consume less energy.

In any case, a comparison between the energy consumption of high-speed passenger trains and trains running on standard tracks is inaccurate, as the operational models are different: the comparison should consider the same line and the same number of stops. With regards to freight traffic on high-speed lines, estimates are very limited.

On the other hand, in EU documents promoting high-speed passenger transport in order to reduce climate modifying emissions [10-1, 10-3], **evaluations never take into account the energy and the raw material spent to realize the infrastructure** (cement, steel, cables, tunnel excavation, transportation of material, arms).

With reference to scientific literature based on LCA (Life Cycle Assessment) of infrastructure, this indirect energy (per unit of service rendered) can be significantly superior to the direct energy used, and should therefore be clearly included in calculations; as demonstrated by analyses on the Milan-Naples



high-speed segment [10-4, 10-5] and studies by the University of California, which indicate how in railway modality the rate of emissions and indirect energy can contribute an extra 155% to operational energy consumption [10-6]. Even in a Swedish National Road and Transport Research Institute report [10-7] and a Royal Institute of Technology of Stockholm study [10-8] it was concluded that **in terms of energy and environment high-speed infrastructures are not more legitimate than other methods, mainly because they entail the construction of long tunnels.**

Furthermore, additional costs have to be added to the construction ones: **operational consumption for ventilation, lighting and cooling** along the 114 km of the base tunnel's two passages, where temperatures could reach 47°C in some sections (LTF General Report). From the project's preliminary data (pag.199 LTF General Relation), whereby it is indicated that disposing of 15.4 MW of heat employing refrigeration, the need of a much higher electric power can be inferred.

As an example, the electric power needed daily to feed the cooling system would balance the energy saved by 140 freight trains in the base tunnel instead of the historic line, at an altitude of more than 750 metres (altitude of the base tunnel).

Thus, if the EU sets itself the target of making freight transport *«more environmentally friendly, safer and more energy efficient»* [10-9], on the other hand it also says that *«Constructing new infrastructure is not an objective in itself. Current infrastructure use can be optimized by deploying efficient and sustainable logistics solutions.»*

In the light of such incongruities, **it is absolutely necessary that studies and hypothesis supporting the Italian Government's conclusions about the project's energetic sustainability should be publicly released.**

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11) And environmental sustainability?

Categorical affirmations like those contained in the Italian Government's document on the fact that *«the project does not generate environmental damage either directly or indirectly»* and that *«the social impact would be absolutely sustainable»* would speak for themselves, if it were not that the answers – along with being surreal from a technical point of view (any large or small project has an impact on the territorial and environmental context in which it is introduced) – are most incorrect, in light of the limitations imposed by the CIPE and forceful requirements of the 'Special Commission for the Environmental Impact Assessment', considering the present state of knowledge of the administrative procedures initiated so far.



With respect to the present situation, one must firstly remember that Susa Valley has been subjected to large-scale construction sites over the last 40 years: the Moncenisio international dam, the expansion of the railway and rail tunnels to double their size, the motorway tunnel and the Fréjus motorway, then the power plant and Pont Ventoux's hydroelectric plant. The presumed "sustainability" claim of the new project never considers the cumulative environmental impact, which is not irrelevant. Moreover the concept of "sustainability" is never defined other than in a heuristic way.

The ten years of construction sites will seriously damage **people's health**: the same study by VIA (Valutazione di Impatto Ambientale – Environmental Impact Assessment EIA) presented by LTF for the international segment calculates the "hypothesis of significant impact on the public health and especially for the population groups susceptible to cardiovascular and respiratory disease which indicate a **10%** pathological increase" due to the levels of particulates produced by the construction sites, and "an increase in respiratory diseases around the **10-15%** found in those who are susceptible such as children and the elderly" with regards to the nitrogen oxides (non-technical summary C3C 01 00 03 10 01 0105). As the pathologies indicated are serious and potentially lethal (heart attack, stroke, pneumonia, etc.), these increases will result in a notable number of deaths within the population for the duration of the construction work. The project documents consider the particulates PM 10, without considering, for example, the fine particles PM 2,5 and other pollutants in the Italian segment.

In fact, the most relevant geological problems are linked to the widespread presence of uranium and asbestos in the areas affected by the construction of the tunnels. (See point 12.) Furthermore, the proponents, to date, have not provided any useful data to understand how they arrived at this hypothesis regarding the impact and thus understand the health risks with greater clarity.

We must also highlight that the so-called exploratory tunnel at La Maddalena (Chiomonte) has been presented as a final project, but an executive project is not yet known of and work has not started, whilst on this project at the TAR (Tribunale Amministrativo Regionale – Regional Administrative Tribunal) there are two administrative appeals to be resolved through the CIPE which approves the project.

To be more comprehensive than the Italian Government's document, below is given a digression on the current state of advancement of the **authorization procedures**.

The EIA procedure on the preliminary draft of the Italo-French common section was started on the August 10, 2010.

On January 24, 2011, also thanks to the observations made by environmental associations (WWF, Pro Natura, Legambiente and Italia Nostra), by the *Comunità Montana* and by some Municipalities of the Susa and Sangone Valleys, the Environmental Ministry's Technical Commission EIA-VAS asked that substantial aspects of the LTF, which were missing from the project, should be republished in the EIA and therefore subjected to a new phase of comments from the Public, aspects such as: 1. Alternative transportation for the waste via railway, 2. Alternative means to re-use and develop the redundant excavated material (of which significant amounts would be contaminated by dangerous substances such as asbestos and uranium), 3. The construction of the motorway interchanges on the A32.

On the August 3, 2011 CIPE (resolution no.57) approved the draft project anyway, deferring the further integrations required and indicating 222 requirements on all the most sensitive aspects of the environmental impact, to which the final project will have to conform (phase in which the EIA procedure is completed, under the Code of Procurement).

In January 2012, environmental associations (WWF, Pro Natura, Legambiente and Italia Nostra) the *Comunità Montana* and some Municipalities of the Susa and Sangone Valleys challenged CIPE Resolution no. 57/2011 with two separate appeals before Lazio's TAR.

The EIA procedure on the final project for the so-called exploratory tunnel at La Maddalena began on May 17, 2010.

On the November 18, 2010 the CIPE (Resolution no.86) approved the project with 128 prescriptions.

In June, the *Comunità Montana*, some Municipalities of the Susa and Sangone Valleys and environmental associations (WWF, Pro Natura, Legambiente and Italia Nostra), which had previously



presented observations on the procedures of EIA, challenged CIPE Resolution no. 86/2010 before Lazio's TAR reporting inter alia that, in their opinion, it would not be an explorative tunnel but a real service tunnel of 7.6 km, strictly related to the base tunnel, contesting the segmentation of the various project excerpts in EIA (so called exploratory tunnel, international and national section).

On March 28, 2011 the EIA procedure began on the draft project and the Study of Environmental Impact (SEI), processed by RFI/Italferr, relating to the national section from Piana delle Chiuse in Turin (or as it is called in the official documents "Turin's belt and connections to the Turin – Lyon line – New Turin – Lion line International section").

The environmental associations (WWF, Pro Natura, Legambiente and Italia Nostra) in sharing their observations on a number of pages ask for the project to be withdrawn and its re-publication for the purpose of the EIA procedure because the documentation presented, given its vagueness, didn't meet the requirements and the standards laid down by the procurement rules.

On June 9, 2011 the EIA Technical Commission and VAS of the Minister for the Environment sent Italferr a request of 36 integrations on fundamental aspects such as the atmospheric emissions, noise pollution, pollution brought on by ionizing and non-ionizing radiation, the aquatic environment, on the soil and subsoil, on the vegetation, the flora and the fauna, the ecosystems and landscape, and public health. The request brings us to a new phase of the EIA procedure on the integrations to the draft project, which opened on February 17, 2012.

As one can see the authorization procedures on the fundamental parts of the intervention are not concluded and, given the number of integrations and requirements, the direct and indirect environmental damages of the work feared as a whole are certainly relevant.

12) What are the most important geological aspects?

In the Italian Government's document and in the draft project of the Italo-French section produced by LTF, the problem of the asbestos has been minimized: «**the presence of asbestos only in the first 400/500 metres**» is admitted, in an area where for years LTF has denied that asbestos rocks could be found. Only to then admit in the documentation produced as part of the EIA process "*...the presence of rocks potentially contaminated by the natural presence of asbestiform veins (ophiolites, serpentinites and green stones) which, during the excavation phases and handling of waste material, can cause a non-negligible amount of environmental contamination of the air and the surface*".

The measures of caution for **asbestos waste** claim that it will be closed in sacks and sent abroad: even just 500 metres of base tunnel correspond to 170,000 m³ equal to the load of 17, 000 lorries. For the excavation of the tunnel it is defined as "very low content" a content below the 5% of the rocks potentially found during the excavation, whilst the legal limit is 0.1%.

We wish to point out that the use of asbestos has been outlawed in Italy since 1992. The law [12-1] is clear regarding this: even a few of its fibres can cause serious health damage. The document [12-2] demonstrates that Turin's University between 1995-1998 carried out surveys in the area highlighting a clear presence of chrysotile and tremolite, asbestos minerals. Alpetunnel, the first company responsible for designing the section, commissioned the studies.

The most recent surveys which claim low presence of asbestos are disputable. The drilling was carried out in places where it is known there is no asbestos: the tectonic structure of the Alpine mountain chain is very complex, having been, during various geological eras, subject to various stages of plicative events, therefore most probably, in neighbouring areas, different results would have been achieved. Surveys from Siena University on 39 rock samples tested from the lower part of the Susa Valley found twenty cases of asbestos fibres "with high tendency to release fibres" [12-3]. Ulterior studies [12-4] concern the presence of chrysotile veins, present in many asbestos serpentinites surfacing in the lower and in the higher parts of Susa Valley and their geneses is associated with a fragile type of deformation. Tremolite veins are widespread in the small serpentinite masses included in the schist of the Piedmont



area, particularly Susa Valley.

Potential asbestos rocks are present in another lithological context constituted by the serpentized peridotites Mount of Musinè [12-8] the ultrabasic complex of Lanzo between Almese and Caselette towns in lower Susa Valley. The same rocks are found in the mountains above the towns of Chiusa San Michele, Sant'Ambrogio di Torino and Avigliana, municipalities affected by the international and domestic sections of the route.

In addition, the **radioactivity** measurements, which in the Italian Government's document are qualified as "below the law's threshold", refer to recent and limited core samples. To begin with, Italian law does not have limits about this, but reference levels and actions based on the principle of justification not unambiguously applicable [12-5]. Moreover, the uranium mineralization in Susa Valley are a verified reality from times which precede the TAV project: the presence of uraninite in the D'Ambin massif rocks, where the excavation of the base tunnel would take place, has been aptly documented since 1960-1970, up to ARPA's measurements in the 90's [12-6].

On the French side, similar explorations were done by the Minatome Company. On the Italian side, in the Susa and Cenischia valleys, uranium abounds, with 28 spectrometric anomalies to be counted and all the above surveys show a significant presence of radioactive minerals.

It is unjustified to claim, on the base of some core samples made in limited areas, that a 57 km tunnel can pass through the mountain untouched by uranium, in a geological formation (Ambin Schist) which is rich in it. Furthermore, even in the presence of uranium's concentration "below the law's threshold", independent evaluations [12-7] show a much higher necessity for air changes in the tunnel due to the problem of Radon, than the one estimated in the project, whilst the disposal of spoils containing uranium minerals is not even taken into consideration.

The aspects of the **hydro-geological impact** are then addressed with great superficiality. One must remember that in this respect previous works in Susa Valley have weighed heavily on its springs: the doubling of the Turin – Modane railway caused the disappearance of 13 springs in Graverè's territory and 11 in the Mattie area, to mention the most significant cases.

The motorway tunnels between Exilles and Cenischia Valley caused the disappearance of 16 springs in Exille's hamlets, a source in Giaglione's aqueduct, as well as some in other locations. The works of the Pont Ventoux power plant, with a tunnel of only four meters in diameter, drained the Pontet stream, two springs in Venaus, two in Giaglione, and about ten in the Salbertrand area, one of which supplied Eclause's aqueduct.

As indicated in pages 104/261 of the General Descriptive Report for the draft project of the international section, on average, the base tunnel at the Susa portal would drain water at 904 litres per second. This is equivalent to more than 28 million m³ per annum.

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13) How will the excavated material be disposed of?

The tonnes of excavated material and those re-used, highlighted in the Italian Government's document, evidently refer to the entire project of the international section from the State border to Chiusa San Michele, as inferred in page 229/261 of the General Draft Project Report prepared by LTF. If however one wishes to refer to the volume of excavated material for the low-cost project, in the absence of evident projects, this can be estimated around 2.5 million cubic meters (equivalent to 6.6 million tons). The Italian Government's document also forecasts reusing some of the excavated material for other infrastructure projects when not used directly for the NLTL works. If one reads the following documents:

- Integrations to the draft project of the international section, prepared by LTF (PP2 C30 TS3 1082 A PA NOT)

- Reply to question 4 by the Environment Ministry for the Protection of the Territory and the Sea, prepared by Italferr for the national section (D040 00 R22 RH SA04 0X 001 A)

the following statements are obtained:

"Moreover it should be noted how the potential for effective use of excess material outside the project, would be made difficult by two conditions required by the regulations in place, and specifically:

- *the requirement to identify "prior to production" the final destination of the material;*
- *the timing constraints established between the production and the effective use of materials which, especially in the case of the maximum one-year target for use outside the project, are extremely penalizing.*

It is stressed therefore how an attenuation of these constraints, through an evolution of the regulation could significantly facilitate finding synergies with other projects or uses within industrial field processes, with evident optimization in all aspects, in particular the environmental and economic ones".

Therefore, from what is depicted above, in the present state of the regulations at March 27, 2012, it is not possible to complete what the government stated.

Finally, it should be noted that it would be less harmful, from an environmental point of view, to transport the resulting material outside the valley to the Chivasso area (PP2 C30 TS3 1081 A PA NOT), and definitively deposit it in the no longer used quarries in Montanaro and Torrazza.

The handling would be done by conveyor belt to Bussoleno; then by trains to the deposit sites, using the historic line, and it would involve material of 2nd and 3rd class. The trains are expected to pass in the eight hours of the night; the number of trains used is variable in the various sections, and the forecast material volumes to be brought in the deposit calculate it. The maximum weight of the trains (tare weight + payload) would be 1,600 tons.

Using this data it has been calculated that the number of convoys, full and empty, needed to ensure the



flow. The data changes slightly depending on the typology of carts, but in essence there are trains with the total weight of about 1,500 tons when full, and about 500 to 800 tons when empty. (See test cited, p. 26.)

The number of convoys calculated in the hypothesis that the waste production peak is reached simultaneously across the whole areas of work, is of 14 couples of trains across the busiest stretch of the historic line.

Stating that this solution has a minor impact on the inhabitants of the valley is not supported by any technical basis.

There are, under the profile of pollution from noise and vibration, two critical aspects to be taken into consideration:

- the noise and vibration released into the environment by systems for loading trains;
- the noise and vibration made by the moving train along the historic line.

On the former, the drafters of the document already cited merely observe that this will involve an extension of the region impacted, and that it will be necessary to consider the proximity of the loading areas to buildings that will “see a worsening of the noise climate with the increase of the noise level”, which is obvious but quite general. It is certain that both the site expected, and the possible areas for loading will suffer pollution levels caused by noise and vibration outside standards. In the documents relating to the draft project already presented on August 10, 2010, the topic was treated in an equally generic way with regards to the operation of the yards; but on that occasion it was explicitly stated that the activity would take place in a continuous cycle over 24 hours and, therefore, also affect night time (non-technical summary page 83).

In the same document one can read *«the acoustic impact determined by the work forecasted on the site is relevant and it could cause, if not managed, exceeding to a level of 25dB (A) above the limits of acoustic class»*.

These numbers imply unequivocally that in the night time values between 85 and 90 dB (A) continuous equivalent levels will be reached, with the presence of impulsive and tonal components. Which makes it simply impossible to sleep – and therefore live – in the vicinity of these sites within an area of the linear dimension of at least 2-3 times that of the yard. This data foresees temporary permission waivers notwithstanding, the fact that it would however end up being not so temporary. It is very unlikely that the Municipalities involved could release the permissions.

With regards to the noise and vibrations generated by the trains the real problem is in the disinterest that the promoter of the project has shown towards the recent history of the valley, and in the attempt of its inhabitants to keep it livable [13-1].

[13-1] In 2002 the then *Comunità Montana Bassa Valle di Susa and Val Cenischia*, together with a citizens' panel registered a protest to the Turin prosecutor's office, in which they complained about the intolerable level of acoustic noise pollution caused by the railway line in the night. From this, a trial resulted which was concluded with an offer from the Italian Railway Service, with the commitment to present a mitigating project.

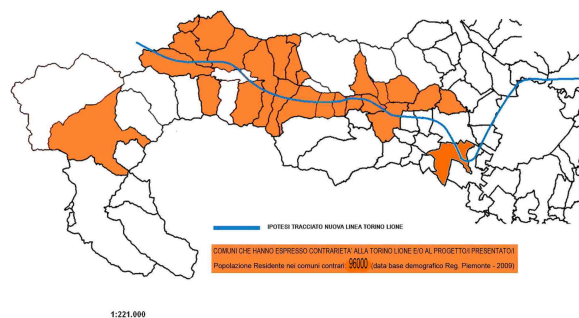
Apart from partial actions, the mitigating measures have not yet been put into action. On the other hand, a hypothesis has now been presented, without any consultation with the Administrations representing the people of the valley, which would imply a doubling of acoustic energy emitted during the critical period. It helps to remember that there is extensive literature, already presented during the criminal proceedings, on the damages caused to the autonomous system of people subject to this type of pollution, and on the plethora of neurodegenerative and cardiovascular diseases resulting from them. The ways in which the promoters wish to proceed is therefore unacceptable. Local institutions should not be expropriated from the right to protect the health of their citizens.

14) What is the actual extent of the dissent of the local governments?



Lastly in the Italian Government's document we read that: «... *the Italian Municipalities against are about a dozen, whilst if considering those directly interested to the realization of the project of sections on the surface and/or yards, only two local governments are against, Chiusa S. Michele and S. Ambrogio* ».

This also is not true. **The Municipalities, which voted official deliberations against the project, are 25:** Oulx, Giaglione, Gravere, Venaus, Noalesa, Mompantero, Moncenisio, Bussoleno, Mattie, San Giorio, Chianocco, Bruzolo, San Didero, Villarfocchiardo, Sant'Antonino di Susa, Vaie, Chiusa San Michele, Sant'Ambrogio di Torino, Caprie, Villardora, Almese, Caselette, Avigliana and Alpignano and Rivalta di Torino. Furthermore, even the Municipalities considered "favourable" to the project have never officially deliberated to approve the work unconditionally, expressing rather skeptical opinions in many cases. (See for example the resolutions of the Susa Municipal Administration: GC no. 71 of 4.10.10, GC no. 22 of 8.3.11 and CC no. 11 of 18.03.11). Moreover, the only territorially competent Mountain Local Government (*Comunità Montana*), that of the Susa Valley and Sangone Valley, has always been against and has continuously presented observations to the project and legal recourses.



In any case, it is not right to consider only the population resident in the Municipalities effected by the route outlined, because the impact of such a large projects is widespread over a larger territory. For example, the Municipalities of Torrazza and Montanaro, where most of the waste from Susa Valley is projected to be deposited, have expressed contrary opinions (see the Municipality of Montanaro's resolution no. 26 of 23.03.11).

With regards to the arbitrary reference to the Municipalities of Chiusa San Michele and S. Ambrogio di Torino «*directly interested by the realization of the project of sections on the surface and/or yards*» it shows the trend, also present in other parts of the document (see answer 11), to reduce the environmental problems to the outside areas, which means ignoring the repercussions that work in the tunnel could have on a very large area. (See for example the distortion of the water systems above and below ground caused by the high-speed Bologna – Florence route).

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