



Dirección de Relaciones Internacionales

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Director

**Mr. Roelof van Ark**  
Chief Executive Officer  
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925 L Street, Suite 1425  
Sacramento, CA 95814

Madrid, 7<sup>th</sup> February 2011

Dear Mr. Van Ark,

With regard to the questions you have been getting from the agricultural community of the Central Valley of California, related to the eventual effect on high value agricultural production (almonds, walnuts, vineyards, etc.) and livestock raising in the area that the construction and subsequent exploitation of a high speed rail system, I attach and send a report to this effect.

As you will see when you look over this report, Spanish experience in the development of a high speed railway network is extensive, covers a considerable period of time and, above all, is positive in terms of the problems you describe to us.

I am therefore at your disposal in order to take to a deeper level an eventual collaboration, as you suggest in your letter.

Yours sincerely,

A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS

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**REPORT ON THE EFFECTS OF THE HIGH SPEED RAIL NETWORK  
ON AGRICULTURE IN SPAIN**

**1 - INTRODUCTION.**

The Spanish High Speed Railway Line began in 1992 with the putting into service of the Madrid-Seville line.

In the 18 years since that time the Network has developed gradually, reaching a length of 2,665 Km.

A significant proportion of the Network is on land with a Mediterranean climate, characterized by agricultural production of high economic value, as is the case in the Central Valley of California.

This production comprises a variety of crops, prominent among them citrus fruits and vineyards, but this also includes almonds, whose production is largely used in the manufacture of seasonal products of high value, such as the nougat that is a characteristic candy eaten at Christmas.

In fact, many of the lines currently under construction cross areas with these same socioeconomic characteristics.

**2 - THE EVALUATION OF ENVIRONMENTAL IMPACT AS A TOOL TO GUARANTEE THAT IT IS NOT AFFECTED.**

To prevent, or in any case minimize, the environment impact of these infrastructures, it is necessary to scrupulously comply with an administrative procedure, regulated by law at a European Union level since 1985 (Directive 85/337/EC on the Evaluation of Environment Impact of Projects), and incorporated into our legislation in 1986.



The aforementioned procedure is carried out in the selection phase of the choice of route alternatives and, basically, attempts to detect and, as the case may be, prevent any critical impact on a proposed route. Likewise, it is essential during this phase to analyze the alternative of not undertaking the project.

The procedure begins with the preparation, by the developer of the project, of the corresponding Informative Study, which is linked to the preparation of the Environmental Impact Study. This reliable and in-depth Environmental Impact Study, mentioned previously, is sent to the developer of the project by the Ministry for the Environment which, in a prior process of consultation, has obtained information from a set of very diverse official Institutions, as well as ecological associations and NGOs.

Once these Studies have been done, both are submitted to the Public Information process, in which any person or entity may pass on their allegations to the developer. The developer of the Project must prepare an allegations Report in which those taken into account are specified, giving what form they take, as well as outlining the reasons for ruling out any of them. Next, the said Report is forwarded, along with the Informative Report, modified in view of the allegations, to the Ministry for the Environment.

Finally, the aforementioned Ministry issues a Statement of Environmental Impact (DIA), in which it can dismiss certain alternatives, declaring itself in favour of a particular alternative and, in any case, can impose certain conditions, of a highly varied nature, on any alternative route, at the general level as well as on segments of the same. Once the developer receives the DIA, the Informative Study is officially approved and this must be subsequently developed in a Construction Project on the alternative route finally selected. Said Project must include an Annex on Environmental Integration, where protection, correction and/or compensation measures for possible damages are defined and economically evaluated, which enables the fulfilment of the determinants established in the DIA. These possible damages are not only limited to the natural environment, but also to historical, paleontological and ethnographic Heritage and, above all, to the socioeconomic environment, where agriculture and livestock raising take on special importance.



### 3 - EVALUATION OF PROBLEMS CONSIDERED IN THE CENTRAL VALLEY OF CALIFORNIA.

Up to the present, the demanding process described has succeeded in guaranteeing the total absence in Spain of the problems being considered in California. In any case, the questions raised are briefly answered in the following.

- 1.- What effect would the passing of high speed trains have on bee colonies, so vital to the pollination of crops, especially almonds?

Without a doubt, the existence of structure of the high speed line itself may produce variations in pre-existing pollination conditions, due to the bees and the wind itself. Thus, the different elements of the infrastructure may modify to a greater or lesser degree factors such as light and temperature, for example in the shadow areas of the viaducts, large embankments and acoustic barriers. In any case, these modifications need not be negative, since the line structure itself may reduce wind speed, a key factor in the flight of bees. In short, the influence of the structure is considered to be of greater importance than the passing of trains, whose effect is estimated to be at the same level as a freeway. Therefore, the final impact must be estimated in terms of local studies that enable the design of corrective measures such as, for example, the relocation of hives.

- 2.- Should restrictions be placed on aerial fumigation with insecticides in order to protect travellers on the high speed train?

In Spain, fumigation operations are regulated by law, in such a way as to reduce the risks from their direct or indirect application on the infrastructures.

At any rate, said risks are the same for a freeway as they are for the railway, and they are handled in the same fashion. Concerning the problem that has been raised, temporary losses of visibility that endanger the safety of circulation, for example, affect road to a greater degree than railway traffic.

With regard to the exposure of travellers to chemical substances, the air-conditioning control system of the train is much more effective in terms of preventing these conditions than the systems used by vehicles on the road. In addition to this, trains cross the exposed area in less time.

*No different than road for air traffic same equipment*

*Factor Exposure*



3.- At what distance from the track could productive crops be maintained?

In Spain no difference exists between high speed rail sections that run across high-value agricultural or livestock-raising land and those that cross other types of terrain. Therefore, the distance from track to crop is the same in both cases and coincides with the infrastructure's wire fence, to which the land taken up by parallel service roads must be added, if they exist. These usually range between and additional 0 to 5 metres.

*generalized  
the fence  
from parallel  
to the sides of  
the track  
to be sufficient*

4.- What would be the width of the surface occupied when a high speed two-way train is constructed across lands devoted to agriculture?

As pointed out in the previous question, no difference exists between two-way sections on agricultural land and land used for any other purpose.

Therefore, except in very specific cases in which the adoption of measures that reduce the width of space occupied is deemed appropriate, a double track occupies 14 metres between each wire fence. From the wire fence, the existence or otherwise of a thoroughfare on one or both sides, as well as its width, determines the total width.

Evidently, this space occupied is greater if the structure is designed on an embankment or a trench, and it is necessary to consider the angle and height of the slope. At any rate, the wire fence is 3 metres from the edge that marks the end of the embankment or trench.

5.- What effect would the wind current caused by high speed trains have on the pollination of flowering crops (for example the walnut or the grape)?

As previously pointed out in question (1), it is estimated that the effects will be analogous to those caused by traffic on a freeway, that is, not very significant. In any case, Spain has extensive experience in the crossing of vineyards, but very limited experience in crossing lands used for the cultivation of the walnut tree.

*very similar  
Pollination  
is in miles  
not miles  
no effect than  
airport  
aircraft into today*

*These crops normally are  
convinced wind pollinated  
and wind agitation actually  
is beneficial as bees are not  
used in their pollination*



- 6.- What experience exists for the correction of Irrigation systems when a railway is constructed across farmland?

In all Spanish construction projects the suitable technical solutions for the restitution of 100% of services affected are defined, including gravity-based irrigation systems. Thus, sometimes very complex and expensive removals are carried out, and in specific instances, there may be cases of plots of land that cannot be restored and must therefore be compensated for economically.

- 7.- What effects does the noise and vibration of high speed trains have on the milk production of dairy cows?

No specific studies are available on this subject, only studies carried out on wine production (cava - sparkling wine) in the wineries near a section of the Madrid-Barcelona line. These studies found no negative effects whatsoever on this product.

*Continuous  
noise  
Electric  
Measure  
Values and  
Compare to  
if it is  
Train.*

- 8.- What effects do the noise and vibration of high speed trains have on the young of cattle?

No specific studies are available on this subject, although no complaint has been registered on the matter.

- 9.- The high speed railway is often constructed on farmland, so some plots of land are inaccessible or become less productive. What has been done to resolve this problem in other countries in which a high speed network has been built?

As indicated in the 6<sup>th</sup> question, construction projects include the restoration of 100% of existing services. In the case of inaccessibility to plots of land, restoration is made through interviews with the owners and, in most cases, by building bypasses of no more than 500 metres from where the original connections existed. Both overhead bypasses and underpasses are designed and executed with a sufficient width and a maximum height clearance to allow agricultural machinery to pass through. The barrier effect of the infrastructure is therefore considerably mitigated.