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URBAN AND INDUSTRIAL LAND-USE CHANGES ALONGSIDE MOTORWAYS WITHIN THE PYRENEAN AREA OF NAVARRE, SPAIN

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Abstract

Road construction and improvement have long been studied as precursors of new development. The environmental impact assessment (EIA) of roads needs to gauge the phenomenon as long as possible, particularly across mountainous areas, because new urban and industrial uses on these valuable and fragile environments may cause significant impacts that should be counteracted to preserve their environmental quality. The aim of this article is to study and compare the occurrence of urban and industrial land-use changes, their rate and their distribution, between 1998 and 2010 and along two newly-built mountain motorways in Navarre (Spain), as a way to approximate the induction phenomenon.

First, urban and industrial land-use changes have been identified, registered and mapped alongside each motorway. From these data, the maximum induction rate has been directly obtained, by hypothetically assuming that all of the new developments that took place alongside a route over a period of time had been induced by the newly-built motorway. This rate may be valuable in future environmental impact assessment scenarios.

Land-use change data have been also set against the distance of the new developments to the motorway, the distribution of formerly existing urban and industrial settlements, and the steepness of the terrain, in order to make a preliminary approximation to how these factors may intervene in land use change processes around the studied motorways.

Key words: environmental impact assessment (EIA), environmental management, induced impact, land-use change, Pyrenees, road impact

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