difficulties for locating manufacturing businesses. As it is happening in the sector in general, there is also a wide range of tertiary businesses in industrial estates. To facilitate analysis of this competition, tertiary businesses have been classified based on the operations they carry out in the industrial estates and location alternatives. Accordingly, one needs to distinguish three business groups: in the first group there are those which have to be located in industrial estates, such as wholesale businesses which, due to the volume flow of goods, would make them incompatible with residential uses. These activities account for 8% of the land in industrial estates in Catalonia and it is forecast that demand will continue to increase. The second group is comprised of businesses that offer services to companies or workers in industrial estates. These are catering businesses, banking facilities, petrol stations, some hotels and others. At the moment there are many industrial estates where there is a shortage of these services, particularly in the smallest industrial estates. So, one can predict that demand for space by these services will be determined by the size of the industrial estates under development. However, one has to bear in mind that they improve competitivity of the companies located there and the quality of life for those people who work there also. The third group is comprised of those businesses which do not provide a direct service either to companies or people, and furthermore are not incompatible with residential uses. These businesses account for 8% of the land in industrial estates in Catalonia and, generally speaking, their location has to be related to the possibility of access to more ground space at a lower price. However, one should bear in mind that these businesses add to competition for land use in industrial estates which can pose difficulties regarding the locating of other branches of business.

1 This article brings together the major contributions from the study entitled "Anàlisi de l'oferta i la demanda de polígons industrials i terciaris a Catalunya" ("*An analysis of supply and demand for industrial and tertiary industrial estates in Catalonia*") by the IERMB team commissioned by the Departament de Política Territorial i Obres Públiques (*Department for Territorial Policy and Public Works*).The authors would like to especially thank Maria Costa's work in the development of the *Census*.

2 Ortofotomapes 1:25.000 de l'ICC, versió 4. Any dels vols 2000-2003.

3 In this article we have used the seven functional areas for the purpose of our study as given in the Pla Territorial General de Catalunya (*General Territorial Plan for Catalonia*): the Àmbit Metropolità (*Metropolitan Area*), Comarques Gironines (*Girona Regions*), Camp de Tarragona (*Tarragona Area*), Terres de l'Ebre (*Ebre Lands*), Comarques Centrals (*Central Regions*), Àmbit de Ponent (*Western Area*) and the Alt Pirineu i Aran (*High Pyrenees and Aran*). We also use "metropolitan area of Barcelona" when referring to the Metropolitan Area.

4 Data source for urban and development land: Direcció General d'Urbanisme. www.gencat.net/ptop

5 The data for Camp de Tarragona (*Tarragona Area*) have not been included as they proved to be of slight significance.

6 See the article entitled "La ciutat i la indústria" ("The City and Industry").

7 For a complete list of interviewed, please see footnote 6 on the Catalan text.

ACCESS TO INDUSTRIAL ESTATES: UNFINISHED BUSINESS

Àngel Cebollada

Introduction

Industry has been re-located to industrial estates on the urban periphery without considering how accessible they are for workers. There is a severe deficiency of collective transport systems linking these industrial estates, and so the car is effectively the means of transport which best guarantees access. This situation has serious social and environmental repercussions. To address this situation, the "Llei de mobilitat de Catalunya" ("*Mobility Law for Catalonia*") provides for executing mobility plans for its industrial estates and creating mobility managers. These two provisions have just begun to be put into practice throughout Catalonia.

1. Inaccessible industrial estates

In recent decades Catalonia has witnessed a process of re-location of economic activities, characterised, to a certain degree, by focusing services (especially advanced services) in urban centres and relocating commercial enterprises that require large land areas, such as industry, to the peripheral urban areas. This is also part of a larger picture, a gradual process of specialised land use according to the purpose for which it is used, and which generates unique and physically separate specialised zones. This is precisely the case for the industrial estates which now form part of our daily urban landscape (López de Lucio, 1993).

The creation of these industrial estates coincides with the increased use of privately-owned vehicles and with the gradual downsizing of various collective transport means. As a result, areas have been specifically designed to house industry in suburban spaces located at varying distances from traditional urban stretches without allowing for means of transport other than a privately-owned car (Cebollada i Miralles, 2005).

The outcome of this process is a situation where there are numerous and fragmented industrial areas where accessibility is a serious problem unless one gets there by car. This is illustrated in the study by the Metropolitan Region of Barcelona's Comissió de Mobilitat del Pacte Industrial[1] (see table 1): 19% of industrial estates within the Metropolitan Area of Barcelona and 20% of the land area where industry is located are particularly difficult to get to if public transport is used. By this I mean that the closest inter-urban bus stops or train stations are 1.5 kilometres from the centre of an industrial estate as the bird flies. In contrast, 23% of industrial estates and 26% of the land area where industry is located are accessible through regular public transport services (PIRMB, 2003). However, these figures are somewhat optimistic when we take into account that the transport services themselves have not been evaluated adequately. By this I mean that while an industrial estate could be 500 metres from a train station, the trains may only run once every two hours, or there may be a bus that runs once an hour to an industrial estate where five thousand workers are employed. Furthermore, what has not been taken into consideration are physical, natural or urban obstacles that separate the train station or bus stop from the industrial estate.

Another issue is the minor role played by company-operated transport. In the beginning (at the end of the 1960s and the beginning of the 1970s), the first companies to set up business in these industrial estates provided transport for their employees, but with the passing of time this means of transport has been progressively withdrawn. This fact is explained by increased car ownership among the population, residential dispersion, inflexibility of available services and the gradual externalisation of transport costs. At the moment, according to data from the survey, *Mostra de polígons d'activitat de Catalunya, 2005-06*[2] carried out by the Institut d'Estudis Regionals i Metropolitans de Barcelona[3], only 10.3% of the industrial estates in the Metropolitan Area of Barcelona and 7.4% of industrial estates in Catalonia as a whole have at least one company that relies on company-operated transport services.

In the light of these statistics concerning collective transport, the breakdown of transport means used by people who work in industrial estates comes as no surprise. The following table illustrates the breakdown by mode of the different industrial estates in the Metropolitan Area of Barcelona. Here you can see a group of industrial estates, all located in periphery municipalities, where the use of a privately-owned car to get to work is above 90%. This percentage drops dramatically in industrial estates where some of the major firms provide company transport (i.e. the case for the Montornès del Vallès group of industrial estates), or those industrial estates located close to metropolitan centres where there is a relatively wide offer of public transport services (for example, Granvia Sud de l'Hospitalet de Llobregat).

2. Economic and social dysfunctions resulting from the lack of accessibility

The lack of accessibility to industrial estates via means other than a privately-owned vehicle brings in its wake a chain of consequences for the environment and socio-economic dysfunctions. This article deals only with the latter of these two, which I have grouped according to who is affected: the workers in the industrial estates, the companies in the industrial estates; and those who are excluded or "absent".

2.1. The workers in the industrial estates

This case concerns that group of people who, despite the problems accessing industrial estates mentioned earlier, are able to get to the industrial estates and, consequently, the work place. This does not detract, however, from the fact that these people have to assume additional costs resulting from this situation. For the majority of workers who get to work using their own vehicle, these costs can be translated in terms of the time taken to get to and from work, the money spent and accidents that can occur *en route*.

Additional costs in terms of time are directly related to the mass use of privately-owned vehicles and the resulting road congestion. This fact mainly translates as an increase in travel time and, consequently, the working day since the journey is directly related to the job. This significant amount of time spent getting to and from work has a direct impact on reconciling time spent at work and time spent with the family.

Cost in financial terms derives mainly from the need to purchase and maintain a privately-owned vehicle as a necessary means to get to the work place. However, this cost increases as a result of road congestion due to the amount of wear and tear on the vehicle and higher fuel consumption.

Accidents which occur *in itinere* are clearly another problematic element for those people who have to travel to work using a privately-owned vehicle. Here I am referring to accidents which occur when travelling to and from work. If we look at figures for the Spanish State as a whole, 40% of road accidents are *in itinere* (some 40,000 per year). In Catalonia alone, the total in figures for this category of accidents was 17,371 in 2004. In Catalonia, in 2003, 90 people were killed in road accidents *in itinere* (the majority due to road accidents), a figure which means that 6 out of every 10 work-related deaths happened while travelling to or from work. In addition to these statistics, 1 in every 9 work-related accidents resulting in sick leave in Spain are due to road accidents, which means that 140 million work days were lost as a direct result of road accidents (CONC, 2004).

Turning to workers in industrial estates who travel by public transport, we find that the cost in time is very high, and a number of factors explain this. First, the need to change to another service; second, because of road congestion which bus users also have to live with; third, because of the distance between the bus stop or train station and the work place; and fourth, the adapted service schedules for industrial estates, which means that they have to get to work well before the work day begins or that they have to wait for a long time before being able to set off home.

2.2. The companies

The lack of accessibility via means of transport other than a privately-owned vehicle also affects the companies that operate in industrial estates since they are often obliged to take on employees from a limited labour market. This situation affects the lowest professional levels (students on work experience) and, to a lesser degree, the high-profile professional categories.

In order to meet employment needs for the less specialised job profiles, they are only able to resort to the very local labour market, often from the same municipality, because the percentage of people in this group who own a car is low. This means that companies have difficulty satisfying their employment needs and are unable to take advantage of the most appropriate human resources in the region where they operate.

The difficulties resulting from being unable to take advantage of students on work experience is another drawback which these companies have to deal with. The professional training courses in secondary education include work experience in companies as part of the student's studies. Generally speaking, companies place a high value on the possibility of engaging students on work experience, as this is an opportunity to try out workers who already have basic training and, at the same time, students can complete their training according to the specific needs of the company where they are fulfilling their work experience requirement. The difficulties related to access to industrial estates means that many companies forgo the possibility of taking advantage of work experience students.

The high-profile professional categories are another group which pose problems for companies when it comes to fulfilling employment needs (and on occasions securing those already employed). Some companies in suburban industrial estates in the second metropolitan ring have experienced the situation in which it is becoming more and more common for employees to place a higher value on having more time for themselves. The existing road congestions and the subsequent time that they have to spend on the road, means that proximity and savings in terms of time are important considerations when it comes to choosing a job. Faced with this situation, the strategy employed by the companies to retain personnel of particular interest is to offer higher salaries.

Another consequence of the lack of accessibility, and related to the points I have just mentioned, is the difficulty of maintaining a stable workforce in certain companies. In the previous paragraph we have seen the case of workers belonging to the high-profile job categories. But the same can be said for the middle and lower professional job profiles, particularly in those companies that are located further away from the collective public transport services and/or those operating in sectors where salaries are lower.

Road congestion also affects companies since in real terms this means lost working hours. A pertinent example is the case of lost production capacity at the Seat plant in Martorell, where up to 2,000 vehicles were not produced due to workers arriving late over the course of one year. As a result of this situation, a plan has been put forward to provide a train service to the plant to prevent road congestion (CONC, 2004).

2.3. Those "absent"

The third category affected comprises those groups who do not have access to a privately-owned vehicle on a daily and independent basis. These make up the group I call "absent" from industrial estates. One only has to page through the classified ads to see that job vacancies include the requirement "own vehicle required" to get to work; even if it refers to temporary work for three months and for the lowest of the job profiles. This clearly has a direct impact on job opportunities for these people and the likelihood of finding a job. Generally speaking, the social groups that find it most difficult to get to industrial estates are women, students, young people and immigrants.

The women most affected are those with a low formal education profile who tend to seek employment in production or outsourced services such as cleaning. To overcome this accessibility obstacle, women have to resort to strategies which make them dependent on third parties, a fact which explains why they continue to be the principal users of the carpool system or a colleague's car. This means that access to industrial estates by women is very much limited to local areas.

From among students on work experience, those who are most affected are those in the Catalan "cicle formatiu mitjà"[4] who are still not of legal age, and particularly young men who choose to qualify to work in the industrial sectors and, therefore, need to further their training in companies, the majority of which are located in

industrial estates. In contrast, young women usually specialise in sectors such as administration, healthcare, hairdressing or sales; in the majority of cases their work experience training can be carried out within city limits. As is the case for women, this group has to rely on the car as a passenger to be able to get to the industrial estates. The lack of safety provisions on the road networks that link to the industrial estates rule out the possibility for them to resort to alternative transport means such as a bicycle or moped.

In addition to students, the young people most affected by this situation are the lowest age groups, with less formal training and with very limited financial resources. This group in particular has difficulty entering the job market because lack of accessibility leads to them being undervalued socially and means that they run a very high risk of social exclusion.

Immigrants also have serious difficulties accessing industrial estates. Nevertheless, people from this particular group attempt to overcome this obstacle by resorting to a wide range of strategies: walking or cycling along lengthy suburban stretches on the side of the road (and at unsociable hours), travelling as a car passenger, forming part of a carpool or using public transport means. They make use of whatever is available to address their disadvantaged situation in the labour market.

Paradoxically, from one perspective, this inadequate state of affairs regarding access to industrial estates seriously discriminates against the socio-economically weakest groups. Yet these very same social groups have set up mobility strategies which are more sustainable (which is precisely what is needed, a requirement from society and sustainable mobility), but yet is difficult for us to put into practice to access the work place in industrial estates with the present offer of transport services.

3. The instruments foreseen to improve access to industrial estates: mobility plans and the position of mobility manager

As of July 2003, Catalonia now has a new set of official guidelines for regulating mobility. The objective behind the mobility law, unanimously approved by the Catalan Parliament, is to plan and manage mobility based on the criteria of environmental and social sustainability. The problems that have been identified to date have lead to this law providing for a particular method of working that gathers information about accessibility problems to industrial estates and establishes the need to draw up and execute specific "Mobility Plans" for these areas. Among other issues, these plans include the need to create the position of a mobility manager.

3.1. Drawing up mobility plans

At present the first mobility plans for industrial estates are being drafted, partly as a direct result of this law, but, particularly, in response to the local representatives who realise that we need to get down to tackling a problem which is becoming increasingly conspicuous in the areas where they operate.

The mobility plans are enacted by a variety of territorial administrations and from the perspective of different territorial areas. The transversal nature of mobility and the different territorial levels involved means that that there is (or could be) a certain profusion of plans proposed and areas affected and which could denote a certain degree of lack of coordination in their studies and proposals. At present, mobility plans are being sponsored by the Generalitat de Catalunya (*Catalan Autonomous Government*), the Diputació de Barcelona (*Barcelona City Council*), the Consells Comarcals (*County or Regional Councils*) and Ajuntaments (*Town Councils*). In addition, there is a plethora of areas, each sponsoring their own plans: territorial and urban policies, economic development, mobility and the environment. This multiplicity of administrations and areas means that on occasions there is an overlapping and different resources could be allocated to the same industrial estates. This has reached the point where, on one occasion, a local council approved two different mobility plans for the same industrial estate without the two departments responsible for putting them forward (in this case economic development and environment) being aware of the other's proposals. Although common sense and good will avoid such flagrant contradictions, and overlapping and lack of coordination are rectified, this should not distract us from the fact that in general what is lacking is a global strategy for dealing with this issue.

In the following paragraphs I shall comment on some of the mobility plans put into operation for industrial estates in the Metropolitan Area of Barcelona, grouped according to methodology and objectives.

In 2004, as a pioneering project, the Barcelona's Metropolitan Region Industrial Pact (PIRMB), and more specifically their Commission on Mobility, promoted the initiative of drawing up mobility plans for industrial estates for three metropolitan municipalities. The objective was to go beyond the plans themselves and to draw up methodology criteria that would serve as a basis for plans in other industrial areas. These plans incorporated a clearly innovative dimension: the inclusion of socio-economic dysfunctions derived from the lack of accessibility and the identification of those groups excluded, thus going beyond the limits of conventional studies on mobility needs.

This task included the participation of the Catalan Autonomous Government's Departament de Política Territorial i Obres Públiques (DPTOP - *Department for Territorial and Public Works*).

Almost parallel to this, and from the area of Barcelona City Council's Vies Locals (*Local Road Networks Department*), a mobility plan was drawn up for an industrial package for three municipalities in Vallès Oriental. On this occasion there was cooperative exchange regarding methodology with the PIRMB mentioned earlier, so that their plan would have comparable results to the previous case. The same approach has been adopted in the municipality of Viladecavalls' Industrial Estates Mobility Plan, proposed by the Pacte per a l'Ocupació del Vallès Occidental[5].

Based on the proposed measures to be adopted, these plans are at different stages of implementation, basically those referring to improvements to, or the creation of, new bus services. Other proposed measures, such as those referring to creating mobility committees, mobility managers or steps to be taken in the area of privately-owned vehicles, have not yet been put into operation.

The Barcelona City Council's Department for the Environment is heading a three-year European project whose objective is to map out ten mobility plans for industrial estates (seven for the administrative boundaries of Barcelona and one for each of the other three administrative areas of Catalonia) as the first step (the first year), and to establish a methodology for putting into operation negotiation mechanisms between the local representatives of the industrial estates in order to implement the proposed measures. For this reason, the project foresees the need for training and appointing ten mobility managers to carry out this task during the remaining two years.

I would also like to point out the work being carried out by the Pacte per l'Ocupació del Consell Comarcal del Vallès Occidental to make an inventory of all the mobility plans and projects that affect industrial estates in this region. This inventory hopes to gather all the proposals for improving accessibility to industrial estates, particularly those which at present have not yet been put into practice, to highlight possible areas of overlapping interests, detect points in common and map out those industrial estates that have been "overlooked", etc. All in all, this is a project that is attempting to make a global reading of the situation so as to be able to provide operational guidelines at a regional / county level which embrace an area that goes beyond the just the industrial estates themselves or an individual municipality. One has to bear in mind that the industrial areas for the Metropolitan Area of Barcelona often form part of urban extensions that cross over the boundaries

of municipal administration jurisdiction. This means that many industrial estate mobility plans for a given municipality affect the area they comprise although the industrial area extends beyond their administrative boundaries.

Altogether, an inventory was made in Vallès Occidental of 58 plans or projects, 21 specific to industrial estates[6] which illustrate the panorama of local councils and local representatives involved as well as the different areas that are working on mobility. Another issue that this study has highlighted for discussion is the lack of coordination and exchange of information that sometimes exist between the local councils themselves.

3.2. The mobility manager

As I stated earlier, the mobility law foresees creating mobility managers. This position, however, still needs to be defined and presents a number of issues to be resolved concerning what their profile should be, which the territory they should cover and who would be responsible for appointing them.

As regards their job profile, it appears that they should be responsible for managing mobility to industrial estates based on applying the agreed plan, and they have to take great care to work with representatives from the industrial estates to make progress in solving this problem. In any case, given the lack of mobility provisions for industrial estates in many respects, there are those who are in favour of creating an overall industrial estates' mobility manager rather than an individual mobility manager assigned to a specific industrial estate.

Turning to the area which an industrial estate should comprise, there is also confusion. In the Vallès Occidental region alone a list has been drawn up of 112 industrial estates: some cover a very small surface area, others are small units integrated into an extended industrial area that were classified as industrial estates as a result of a partial plan that had been developed. It would seem pointless to assign a mobility manager to each of these industrial estates, and yet it would possibly be more viable to group certain individual industrial estates together based on key variables such as territorial continuity, labour market and mobility flows.

Finally, which local authorities or local representatives should set aside time and take on the expense of appointing and training mobility managers, is another current problematic issue. If the law states, "a framework for setting up and financing has to be established which is the responsibility of the companies who operate there…"(Catalan Mobility Law - additional third paragraph)[7], then this is not a realistic possibility while it is based solely on the disposition of the companies and not on clearly binding legislation.

At the moment we can talk of two mobility managers who are responsible for Zona Franca and the Universitat Autònoma de Barcelona (*Autonomous University of Barcelona*), although the latter is not an industrial estate in the strict sense of the term. But, both cases are special areas which each cover a very large surface area, so this does not make them the best of models from which to base experience for applying to other areas. As a final point, the managers of the project headed by the Barcelona City Council's Department for the Environment foresee the financing of managers through European institutions, as a pilot project, which means that it would be difficult to extend this financing to other areas.

4. The world of the industrial estate: a heterogeneous reality to be taken into account to improve accessibility

Improving access to industrial estates means making the necessary instruments available to travel there via means other than a privately-owned vehicle. However, industrial estates are very heterogeneous in themselves when it comes to structure, local representatives, social groups, tasks, and schedules, etc. This diversity needs to be taken into account: proposals should not be thought of in general terms but rather tailored to the needs of specific social groups. Companies are the physical space where different social groups coincide on a daily basis to perform their jobs, but each of these interested parties interacts in its own way with means of transport and mobility strategies.

The following paragraphs provide a breakdown of those who make up the groups of people that need to gain access to industrial estates on a daily basis.

The workers directly employed by the companies located in the same industrial estate are not a homogeneous group, either by gender, age, professional category, working hours, disability or rights. However, they do make up the most visible group and they are the main focus of the diagnostic studies and proposals for mobility plans to industrial estates.

Sub-contracted workers make up a mixed bag who play an important role in the daily running of companies that outsource a large number of tasks, including production work. These sub-contracted workers are likely to use vehicles to get to the industrial estates, sent by the following companies:

a) *Temp or Seasonal Job Agencies*. These are a supply source of a large number of people who have to get to and from industrial estates on a daily basis. Given the temporary or seasonal nature of their work and that these people tend to correspond to the lower professional job profiles given the tasks they perform, this group encounters great difficulties getting to industrial estates since many of these workers do not own a vehicle.

b) *Companies providing cleaning services*. This task is common to all the companies in industrial estates and is generally sub-contracted. The workforce in this sector is usually comprised of women who have mobility difficulties and who often work unsociable hours, typically before the normal work day begins. Therefore, these are people who work during hours when there is a serious lack of transport services other than a privately-owned vehicle.

c) *Employment associations working with disabled people*. Although they can also be hired directly by the company, there are associations that, in effect, operate like companies providing a service with the objective of placing people with some disability. This social group also has a specific profile as regards mobility as they need access to more specific means of transport. The majority of the busses that run to the industrial estates are not suitably equipped which means that industrial estates are inaccessible for this particular group.

d) *Other sub-contracted groups*. This encompasses a group that could range from the security sector, gardening or catering. These people also have a specific job profile regarding the hours they work and the available means of transport.

The Secondary Education Schools and the universities also generate a group of people who are required to carry out their training, at least partially, in companies located in industrial estates. The mobility problems faced by this particular group of students on work experience have been discussed earlier in this article. The curriculum for Catalonia's secondary schools' "cicles mitjà i superior" includes, as part of the study programme, a work experience module which students are required to fulfil to be able to complete their formal education. These work experience modules are an integral part of the academic year whereby students have to combine a half-day's work at a company with a half-day at school. Students, therefore, make up a group with a specific mobility profile as regards mode of transport, working hours and the route they have to travel.

5. Views concerning mobility strategies

In addition to this heterogeneous reality regarding the profile of local representatives and social groups found in industrial estates, there are also a variety of views concerning the different mobility strategies. Being familiar with these views is of primary importance when it comes to carrying out proposals concerning

accessibility: what would be the agreements and objections to introducing improvements, what role should be played by each local representative and what responsibility would they be ready to take on? All of this would be extremely useful information for the mobility manager to elaborate measures that by necessity are extremely complex, as is the problem to be resolved. In the following paragraphs, I shall describe these mobility strategies and the most common views held by the various local representatives.

The car as a driver. This is the predominant strategy and the one seen as being the most practical for getting to the industrial estates. In fact we have already seen at the beginning of this article how this is the majority transport choice in the industrial estates for which we have data. This fact needs to be put into a context of the poor offer of alternative means of transport other than the privately-owned vehicle, and the fact that there is an absence in these industrial estates of other social groups, that is, those who do not own a vehicle. This very lack of alternatives means that many companies specifically require their workers to be car owners to the degree that those excluded continue to be overlooked when proposing a mobility model.

Car sharing. So often we forget that there is a more rational use of the car from a social and environmental point of view. Car sharing is also a common practice for getting to and from industrial estates. In the table below, you can see that the percentages for those who resort to this strategy runs from around 4.3% for the Granvia Sud industrial estate, to 10% for the industrial estates in the Polinyà industrial estate.

Here we have two ways of sharing. The first is the carpool, that is travelling together with other work colleagues. The reason for resorting to this strategy could be sharing travel expenses or alternating the car being used, or it could be another way for some people to get to work who do not own a car. The second vehicle sharing option is to rely on resources within the family whereby a family member expressly drives the person to the work place when no other solution is available; typically, this is the strategy resorted to by women and young people. Many companies do not view this strategy option positively as they do not consider it to be a valid solution because if anything happens to the person driving this will result in absenteeism of his/her companion travellers. Therefore, to promote this particular strategy one first needs to establish measures that would solve these problems and meet with the approval of all parties concerned.

Company-run transport. It is viewed by many firms as a relic from the past on the road to extinction. This is a service that has been steadily decreasing year after year as workers rights to this service have been "bought up" by the companies. In some cases this service has been maintained because it is required by law (i.e. if the company has relocated) or because company committees (with the exclusive right to decide on these matters) have chosen to retain the service. The continuity of these transport services undergoes re-negotiating conditions, that it should be a service shared by various company collectives and there should be mutual agreement between all the parties involved.

Public transport. It is considered completely inadequate by all the local representatives. The statistics generated by the surveys answered by workers in the industrial estates clearly illustrate the state of these services. We have already seen in table 2 how the figures for those using public transport are very low and vary between a marginal 0.2% for Parets del Vallès to the exception of 27.6% for Granvia Sud de l'Hospitalet de Llobregat. However, taking aside the latter case, the data for all the industrial estates reflect figures of 6.7% or lower.

Setting up new lines of service or adapting those already in operation needs to be adapted to needs related to working schedules, complementing present services and integrating them into the public transport service routes. For example, you cannot have a situation where the proposed bus service begins before that of the urban bus services in the municipality where this service would run from. Here, proposals for operating public transport services, must also take care to provide a transport service that is competitive in terms of journey time and tailored to the size of the industrial estate and the number of existing workers. Likewise, these proposals have to incorporate concerns and views regarding safety, comfort and road safety provisions for the trajectories that run to the bus stops and stations. Once again, it is essential to incorporate gender considerations since, on the one hand, women are the main users of these means of transport, and on the other hand, they are the group most likely to experience potential risk situations: what is the point of a bus stop that is inaccessible or perceived as a potential danger? There are precedents for non-use of this means of transport precisely for this reason.

Non-motorised modes. Despite the fact that these modes of mobility are viewed as marginal, walking to work affects the majority of workers since it is an integral part of the majority of the routes. Therefore, any proposal that has the goal of improving access to industrial estates has to take into account itineraries undertaken on foot or by bicycle, be it within the boundaries of the industrial estate or possible links to transport infrastructures and urban nuclei in the surrounding areas. These routes have to be feasible and safe at any time of the day and for any of the social groups. Once again, this means taking into account gender at the design stage.

6. Final conclusions

At present, in Catalonia we are at the point where plans and operations to improve accessibility to industrial estates are emerging. The present problems encountered accessing these industrial spaces, that have resulted from lack of planning, and the environmental, social and operational problems that have ensued, are reason enough to justify the interest shown by many and various local representatives to work towards providing solutions to the problems highlighted in this article.

But the drawing up of these plans by the various bodies, and in different municipal areas, does not necessarily mean one should disregard working from a global perspective that could include areas that extend beyond an industrial estate and that could create links with its potential labour market and with other industrial estates in the area. To do this, it is necessary to take advantage of points of common interest, make good use of existing services, share services, not only for individual companies but also for different industrial estates as the most important factors.

It is also important for plans and proposals to be put into effect with the agreement of the local representatives involved for them to be effectively put into practice. As I have mentioned throughout this article, the proposals that have been put into operation are mainly those referring to public transport. But, the other face to the coin is that other proposals could be left hanging: setting up mobility managers, creating a mobility council, policies regarding the use of a privately-owned vehicle or improvements to accessibility for non-motorised modes, often end up not being put into operation. These considerations are no less important. But, above all, these are measures that require consensus and the active participation of the local representatives, the other dimension to a theoretical plan.

Another item to take into account is that all the local representatives and social groups in these industrial estates need to be considered: the most visible and hidden, those present and those absent. When mobility plans for industrial estates are proposed one has to have a very clear focus on the two objectives being pursued: the change in the transport mode for those people who travel to and from the industrial estates on a daily basis, and the inclusion of that sector of the labour market that has been left aside because it is impossible for them to get to the industrial estates. The surveys that deal with demand have focused on those who can get there and, normally, those

who have been directly employed by companies in the industrial estates, and include very little data for subcontracted groups. The very same data that is used as a basis for getting to know the world of people who work in industrial estates can tend to overlook groups of workers such as cleaning services, ETTs (Temp or seasonal employment agencies in Spain) or auxiliary services. And, as I have already said, regardless of the volume of people they may represent, this particular group of people are vulnerable because of the mobility modes they have to use.

To be able to identify the group I call "those absent", we need to resort to qualitative research methods. Getting to know the nature of the problem, views and concerns surrounding mobility problems generated by the lack of accessibility and the profiles of those absent, are key data that should allow us to draw up proposals to facilitate their inclusion.

Finally, it is necessary to see that newly constructed industrial estates incorporate accessibility needs into their initial stage of conception and include modes of transport that would allow for sustainable, safe and universal access.

1 The Pacte Industrial de la Regió Metropolitana de Barcelona is a territorial association made up of local administrations, trade-unions and businesses organisations and a wide variety of bodies related to economic development and the promotion of employment.
2 Survey of active industrial estates in Catalonia, 2005-06.
3 Institute for Regional and Metropolitan Studies of Barcelona.
4 This is a two-years period of professional learning, usually for 16 to 18 years old people.
5 Vallès Occidental association of companies, trade unions and local administrations to promote employment.
6 In this study the more general plans were used if the municipality did not have specific studies for their industrial areas.
7 "ha d'establir-ne el règim d'implantació i el finançament a càrrec de les empreses que hi operen..." (*Llei de mobilitat, Disposició adicional tercera*).

INSTRUMENTS FOR THE PLANNING, DESIGN AND MANAGEMENT OF NEW AREAS OF ECONOMIC ACTIVITY[1]

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Introduction

In the month of September 2005, Olot was the venue for the third Workshops on Environmental Evaluation[2] applied to town and country planning. The workshops were organised by the *Fundació d'Estudis Superiors d'Olot* (Olot Foundation of Higher Studies) and the *Col·legi d'Ambientòlegs de Catalunya* (Professional Association of Environmental Scientists of Catalonia) and involved the collaboration of the *Generalitat de Catalunya's* departments of Territorial Policy and Public Works, and Environment and Housing[3], as well as the *Observatori del Paisatge* (Landscape Observatory) (table 1).

The workshops focused on debating a specific aspect: the implementation of new areas of economic activity in the territory. Three key questions were approached in this respect: where do we locate them? What is installed there? And how are they installed?

1. Conceptual framework

The workshops, which were held in the context of the *new culture of territory*[4], particularly focused, as a preliminary element of the debate, on the fact that territory should be understood as being a finite, limited and scarce resource[5], one that is of key importance to all citizens, and which should be understood as a common asset that is not at the free disposition of the urbanisation process. They also considered, as a guiding element, the need to promote a change in the environmental policies that have been observed until now. The aim is to shift from *end of the pipe or corrective policies to preventive policies*[6].

The new concept of sustainable development and the need for it to occur on a local and regional scale offers an excellent opportunity for the integrated incorporation of the environmental and ecological question into town and country planning[7].

From an environmental perspective, the inclusion of environmental planning in plans and programmes[8] is a key part of this process. The idea is to plan ahead for the initial stages of the planning process and even of policies, in order to incorporate the environmental dimension from the outset and guarantee that all of the alternatives and impacts are adequately considered. But what are the tools and instruments available for the planning, design and management of areas of economic activity on the basis of this new conceptual framework?

2. Territorial planning

A primary element for reflection is that referring to the selection of the location for these areas. The choice is a key decision which should consider environmental and landscape criteria as variables that should be present in the decision making process.

But how should the choice of location be dealt with? Does every municipality have to have its own *industrial estate*[9]? There are several reasons why supramunicipal implementations are often necessary. This justification is included, synthetically, in the first conclusion to be drawn from the workshops: "The practice of locating an area of economic activity in every municipality has led to serious problems of an environmental and territorial nature. Among other effects, we should mention: the indiscriminate use of land, the difficulty of supplying them with water, power, new technologies... Moreover, dispersion generates problems in terms of mobility, both of people and merchandise and many of them are not very competitive".

Without large-scale planning and coordination, each municipality would have to construct its own estate, becoming obsessed with persuading activities to locate in its municipal district, pursuing the dangerous and imprecise vision of linking such location with richness and employment. It is as if those municipalities that do not manage to establish their own industrial estate would have to be indefectibly condemned to being marginalised in the general process of national growth.

The development model, in this context, must not lack a global territorial vision, either from the physical (accessibility, mobility of people, suitability of the type of soil, orography, environmental impact) or the strategic (exploiting the potentialities of each territory, specialising uses to obtain the maximum synergies, etc.) point of view. This option makes it possible to more efficiently deal, from an environmental perspective, with other aspects such as mobility, public transport access[10], quality supply of water and power, etc, while preventing these areas from being dispersed too much around the territory in order to guarantee that what is already a scarce enough resource is used more functionally and rationally[11].

Pluri-municipal industrial estates may be a solution in terms of the rationalisation and optimisation of the processes of territorial occupation, thus leading to a tendency to concentrate rather than disperse. This scenario obviously presents major problems in terms of town and country planning. The beneficial consequences derived from it (table 2) would be sufficient compensation for the major difficulties that would need to be overcome, and which cannot be denied, and the proposal signifies a change of panorama in terms of the urban planning of this country[12].

Territorial planning must assume a highly relevant role in this aspect, both in terms of the promotion and the establishment of these new locations in the territory, and of considering the criteria of functionality, rationality and efficiency. In this sense, the criteria for the development of the *Programa de Planejament Territorial* (Territorial Planning Programme) states:

"Territorial plans (...) must be restrictive in the implantation of industrial estates and business parks that are formally autonomous and separate from urban bodies. It would be useful for these implantations to be limited to those that